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Original Articles.

GUN-SHOT FRACTURES OF THE EXTREMITIES.

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DURING a three months' service, from April 1 to July 1, 1915, in the University Service of the American Ambulance, at Neuilly-sur-Seine, France, 132 patients, or about one-third of the total number of admissions, presented one or more fractures of the extremities. In 16 cases more than one of the long bones was broken, so that data on 148 fractures are available for study. These cases proved to be among the most interesting and the most difficult cases with which the Service had to deal. There were 129 compound fractures and 19 closed, or simple fractures. Of the 129 compound fractures 8 were incomplete, and the bone was merely grazed or grooved by the bullet, without solution of continuity or abnormal mobility.

Table I indicates the occurrence of fractures in the different bones of the extremities, and shows that the humerus was the bone most frequently involved. The upper extremity as a whole, however, was no more frequently injured than the lower, there being 73 fractures of the upper and 75 of the lower extremity in the entire series.

TABLE I.—FRACTURES OF THE EXTREMITIES.

	Closed.	Compound.	Incomplete.
Clavicle	1	3	
Scapula		5	1
Humerus	3	28	
Arm—both bones		6	
Ulna		6	
Radius	1	2	
Carpus		4	
Metacarpus		4	
Phalanges		9	
Femur	4	17	3
Patella		2	
Leg—both bones	3	11	
Tibia	5	8	3
Fibula	1	7	1
Potts	1		
Os calcis		1	
Tarsals		2	
Metatarsus		4	
Toes		2	
	19	121	8

Compound Fractures. The missiles causing compound fractures in this series were for the most part received in trench fighting. There were only 4 injuries due to shrapnel balls; while there were 45 due to fragments of high explosive shells, and 38 to rifle bullets. In 27 cases the nature of the missile could not be determined.

Types of Fracture. Fractures produced by bullets occasionally showed the typical lines of fracture associated with gun-shot injuries, namely, the so-called "butterfly" fracture of the shaft of the long bones, and the "gutter" fracture or "drill" fracture of the softer expanded portions, Fig. 1, 2 and 3. Many of the bullet wounds, and almost all of the fractures produced

FIG. 1.—Typical "butterfly" fracture of tibia, produced by rifle ball.

by shell fragments gave multiple comminuted fractures, with extreme laceration of the soft parts between the wounds of entrance and of exit. In the shell wounds this was attributed to the irregular shape of the fragments; in the bullet wounds it was attributed to the so-called explosive effect of the modern rifle bullet at short ranges, such as obtain in the modern trench fighting and assault. Fig. 4.

Infection. There were only three of the 121 compound fractures in which aseptic healing of the wounds of entrance and exit occurred. These

FIG. 2.—Compound fracture of ulna, produced by rifle ball. Typical "butterfly" fracture.

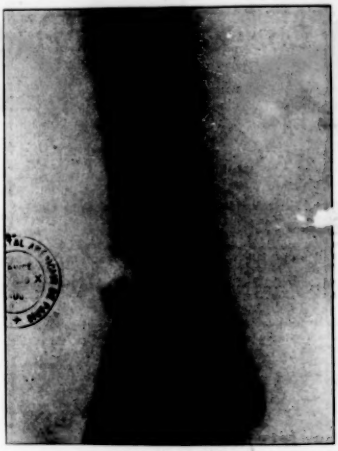


FIG. 3.—"Drill" fracture of lower end of tibia.

cases were: (1) A fracture of the neck of the femur, (2) a fracture of the fibula, (3) a fracture of a single phalanx. In all of the other cases a certain amount of sepsis was present. Cultures were obtained from many of the most gravely infected wounds, and out of 132 cultures taken on 100 different cases, 28 showed gas-producing organisms not to be distinguished from the Bacillus Aerogenes Capsulatus. When the bacillus was not present the ordinary pus-producing organisms were obtained. All of

FIG. 4.—Extensive comminuted fracture of humerus by shell fragment, with great loss of substance. Shell fragments remaining in tissue.

these cases received a first-aid dressing with iodine, and an inoculation of tetanus antitoxin, at the front. They then came back through one or more evacuation hospitals and reached the American Ambulance from twenty-four to seventy-two hours, as a rule, after the receipt of injury. Occasionally cases were received which had been for longer periods at hospitals nearer the front.

Infection of the wounds at entrance was so much the rule that the routine treatment of the case was directed especially toward overcoming this infection. It was attributed especially to contamination of the wound at the time of entrance of the missile, or immediately after, and it was believed that this contamination came chiefly from the clothing of the soldier. Wounds produced by shell fragments were as a rule more seriously contaminated than those made by bullets. In many cases fragments of the soldier's clothing were carried bodily into the wound and deposited deep in the tissues. These fragments of clothing in many cases gave a culture of the gas-bacillus, and a continuance of the infectious process was to be expected until these fragments were sought for and removed. A series of cultures taken from soldiers' clothing showed in many instances the presence of the gas-bacillus in the clothing. In one of the pathological specimens brought back from Paris a piece of the soldier's uniform lies in the middle of a "drill" fracture of the head of the tibia. This was a case which came to amputation on one of the other services at the hospital.

Treatment. The use of first-aid dressings with iodine, and the injection of tetanus antitoxin at the front line dressing stations has been alluded to. These first-aid dressings were commonly applied directly to the skin by cutting away the clothing over the part; the clothing over the rest of the body was not removed, and the extremity was usually immobilized in a tin or aluminum splint with cotton padding, for the journey to the base hospital, Fig. 5, 6 and 7.

FIG. 5.—Types of wire gauze-splints supplied to the French dressing stations at the front.

FIG. 6.—Folding aluminum arm splint.

On entrance to the hospital these patients were examined, and in practically every case ordered to the operating room, where under gas-oxygen, ether or chloroform anesthesia, the part was shaved, dried, painted with iodine, and the wounds of entrance and (if there were one) of exit enlarged and explored. In many cases, especially when the missile lodged, an x-ray plate or fluoroscopic examination was obtained before operation.

In cleaning up these wounds an effort was made to find and remove foreign bodies of any

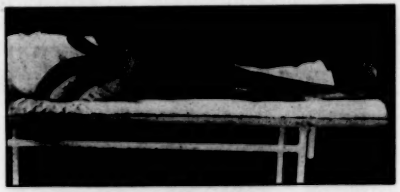


FIG. 7.—Folding aluminum splint for leg and thigh.

sort, whether missiles, clothing, gross dirt, hair, or other matter. In many cases fragmentation of a bullet by rupture of its jacket produced so many minute particles of foreign material that complete removal was an impossibility, Fig. 8. When serious comminution of the bone was present, especially when the particles of the bone had been driven as secondary missiles into the surrounding tissues, and had been detached from the periosteum, these bone fragments were also removed. Where bone splinters, by their anatomical situation, threatened erosion of the large vessels, they were also removed. Devitalized tissues, especially skin and muscle, were excised.

Irrigation was employed in many cases, either salt solution, weak iodine solution or sodium

FIG. 8.—Compound comminuted fracture of humerus by shell fragment. Multiple foreign bodies left in. Good union.

hypochlorite (1:200). The last was found to be a very satisfactory solution for irrigation both at operation and in after-treatment.

Drainage was employed in practically every case. For this purpose rubber tissue or "protective" was found to be most satisfactory. Thin sheets of "protective" could be laid between the muscle planes, and gave less danger of erosion of vessels, etc., than did more rigid rubber tubing. After the wound had been satisfactorily cleaned and drained, a rigid dressing for immobilization was applied, with the patient still under the anesthetic. In the leg and thigh fractures this was greatly facilitated by the use of the "Maddox" extension table, whereby extension could be maintained during the application of a plaster dressing, Fig. 9.

Wood and metal splints were used in certain cases, especially at the beginning of our service, Fig. 10. As time went on, however, plaster dressing reinforced with bridges of wire gauze or iron were more universally employed, and the problem of satisfactory fixation of these cases seemed to have been solved, Fig. 11, 12, 13, 14 and 15.

After-treatment. Immediately following operation and cleaning up of a fracture, a marked rise in temperature and pulse ordinarily took place. By the second or third day, however, the majority of cases showed a normal temperature and had very little discomfort. Wounds were dressed at intervals of from six to twenty-four hours. The most septic cases had wet dressings applied at frequent intervals, or were put upon constant irrigation, the solution of sodium hypochlorite being most commonly used. By means of the "basket" plaster constant irrigation could be carried on without getting the plaster wet. Drainage wicks were changed at frequent intervals, and this could be done without much pain by the use of "protective" tissue. It was our belief that the very constant and devoted supervision of these cases after operation, by the house-officers on the Service, was responsible very largely for the rapid subsidence of infec-

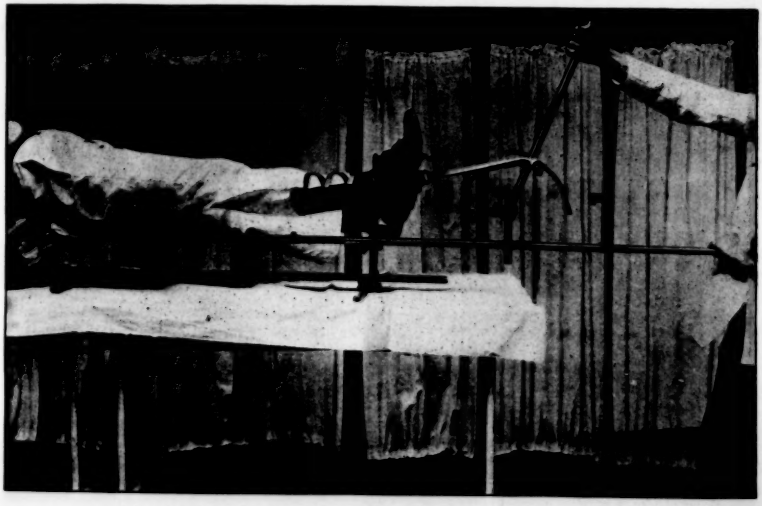


FIG. 9.—"Maddox" extension table for the application of plasters in extension.

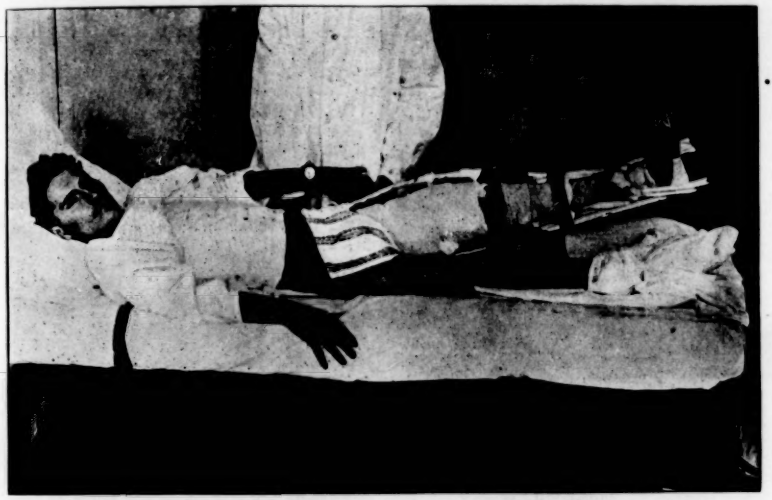


Fig. 10.—Osgood's modification of Thomas' hip splint with extension and foot-rest, for compound thigh fractures.

tion. Occasionally a plaster dressing would have to be split, or even a new one applied, because of swelling. More often, however, the plaster could be retained until diminution of swelling made necessary a new plaster to obtain sufficient immobilization.

There was one death in the entire series of cases, due to a gas-bacillus septicaemia. This was a case of compound fracture, by shell wound, of the right humerus, with injury to the brachial artery. At entrance there was gangrene of the arm, and spreading gas-bacillus infection of the shoulder and the tissues of the chest wall. Amputation was done immediately, and wide incisions were made in the infected tissues. No further local extension took place, but the patient died on the sixth day with gas-bacillus septicaemia.

There were 5 cases of amputation of a finger for a compound fracture of a phalanx, and there were 13 cases in which amputation of the upper or lower extremity was necessary. Five of these amputations were done at the front before the patient came to the American Ambulance; two were amputated on the University Service before the Harvard Unit came on duty, and six amputations were performed on the Harvard Service. Indications for amputation in the six cases were as follows: For secondary hemorrhage, 2 cases—1 arm, 1 leg; for gas-bacillus infection and gangrene, 1 case—the fatal case above referred to; for sepsis of the knee or ankle joints, 3 cases. Five of the six cases recovered.

Time sufficient for solid union of many of these fractures had not elapsed when our Service finished on July 1. Fifty-seven of the 132 patients, however, had been discharged from the hospital within that time.

COMPLICATIONS.

Sepsis. The complication most to be feared in these cases was, undoubtedly, continued sepsis. Infections with gas-producing organisms were not unusual, but rarely failed to yield to open incision, drainage and irrigation. An anti-gas-bacillus serum was prepared by Dr. Weinberg of the Pasteur Institute, and was used in certain cases in the hospital. As other methods of treatment were also employed simultaneously, it was difficult to determine the value of the serum.

Many cases showed gas bubbles, crepitation and the characteristic odor and appearance of gas infection at entrance, but in only one case was amputation necessary for this condition, and in that case an injury to the brachial artery was the principal determining cause of the gangrene of the extremity. That patient died of a gas-bacillus septicemia. Other cases showed gas infection at entrance, but as the case progressed the signs of gas-bacillus disappeared, and the ordinary pus organisms alone were present. In two such cases amputation was subsequently necessary, where the sepsis involved the knee joint. In another case complete disorganization of the ankle joint, and a mixed infection made advisable an immediate amputation.

Hemorrhage. Secondary hemorrhage is a serious and not unusual complication of gun-shot fractures. The proximity of the main vessels to the long bones and the ease with which they may be wounded by the missile, by sharp fragments

FIG. 11

FIG. 13

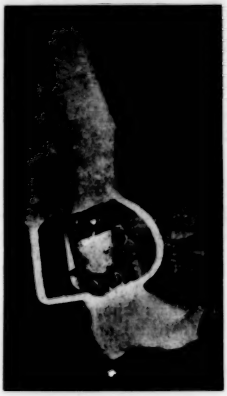


FIG. 12

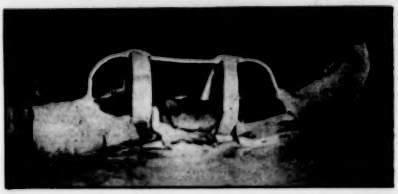


FIG. 14

FIG. 15

FIGS. 11, 12, 13, 14, 15.—Types of reinforced plaster of Paris splint for compound fractures. Bridges of wire gauze used to strengthen the dressing where windows are cut to permit dressing wounds.

of bone, or by erosion of advancing sepsis, made this possibility one ever to be borne in mind. Two cases of secondary hemorrhage occurred in 121 compound fractures, one from the anterior tibial and one from the brachial artery. Both required ligature and amputation, and in one a transfusion was necessary on account of the loss of blood. Tourniquets were kept at the bedside of the more gravely infected cases, and plaster dressings were arranged with a view to permit the application of the tourniquet in case of need. As a result of observation of our own and other cases in the hospital, we came to believe that free incision and drainage, removal of sharp bone fragments, and the best possible immobilization of the ends of the bones were the three most important conditions to be observed in the avoidance of secondary hemorrhage.

Necrosis. Where sepsis was continued for a considerable period of time, even if of low grade, bone fragments became devitalized and were sequestrated. In such cases secondary operations were sometimes necessary for the removal of sequestra. In one case the fragmented head of the humerus was sequestrated in this way, in such a fashion to produce, as it were, a spontaneous resection of the shoulder joint, Fig. 16. In four of the eight fractures involving the head of the humerus, secondary excision of the head of the bone was necessary, and in two of the three compound fractures of the neck of the femur, excision of the head of the femur was performed, Fig. 17 and 18.

FIG. 16.—Compound fracture of humerus by shell fragment. Spontaneous sequestration of bone fragments removed by operation.

Delayed Union and Non-union. This was a complication or sequel to be feared in all of the compound fractures. Where a considerable loss of bone substance was sustained by the passage of the missile, or was made necessary by operation, a delay in healing was to be expected. In the cases of continued sepsis and necrosis also, a prolonged convalescence was to be expected. One could not fail to be impressed with the extraordinary reparative power of bone in young and healthy patients such as the French soldiers. In cases of delayed union conditions favorable for operative fixation by plates or bone grafts could not be obtained until the sinuses were closed. We found but one case suitable for such procedure. (See "closed fractures").

Ankylosis and Contractures. Nerve Lesions. Following long fixation of joints and lack of use, it was to be expected that many cases of ankylosis and contracture would occur. There was abundant material for orthopedic treatment, both in old cases, to remedy existing deformities, and in more recent cases to prevent their occurrence. In this connection the frequent involvement of such nerves as the musculo-spiral and the external popliteal must be borne in mind,

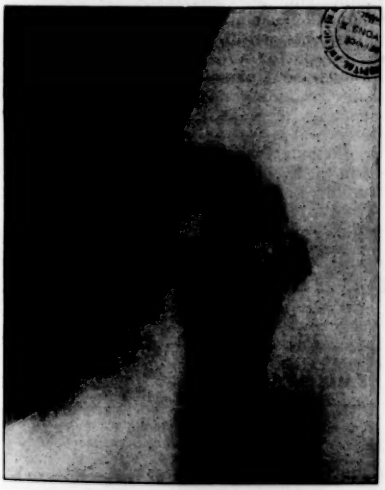
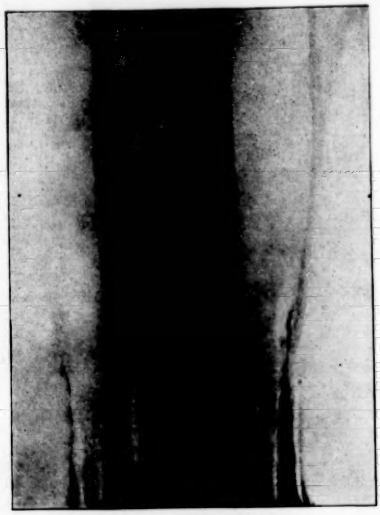


FIG. 17.—Compound fracture neck of right femur by shell fragment. Operative excision of head of femur.

FIG. 18.—Compound fracture of neck of femur, by rifle ball. Operative excision of head of femur.

with their accompanying wrist and toe drops, for which special retaining and correcting splints were devised. These and other peripheral nerve lesions will form a subject of a special report by Drs. Cushing and Cutler. Use was made of steel calipers inset in plaster dressings, in order to provide knee motion in thigh and hip fractures in certain cases.

Closed Fractures. There were 16 cases of closed or simple fractures of the long bones, which were produced by causes other than perforating missiles. These were not materially different from fractures occurring in civil life. There were also 3 cases which were closed fractures when transferred to us, which had been previously compound fractures produced by missiles. There were 5 fractures of the tibia, 4 of the femur, 3 of both bones of the leg, and 3 of the humerus. In 14 of these cases fixation by splints or plaster was sufficient. Five cases came to operation,



FIGS. 20 and 21.—Closed spiral fracture of tibia. Open reduction and fixation with Parham bands.

FIG. 19.—Simple fracture of femur, healed in deformity. Reduced by open incision and bone plates.

Two fractures of the femur were cut down upon, extension applied and bone plates used to hold the ends in apposition. Both were old cases, healed in deformity. In one of these the plate loosened and a partial recurrence of the deformity took place. The other was a perfectly satisfactory result, Fig. 19. In three cases of oblique fracture of the tibia, operation was done—two were fixed with Parham bands, Figs. 20 and 21, and the other with a bone plate. All of the five cases healed by first intention, and the plates or bands were not removed.

SUMMARY.

Early and thorough operative treatment is indicated in gun-shot fractures received under the conditions of trench warfare.

The removal of missiles, foreign bodies, and detached bone fragments, and thorough drainage are important.

Complete immobilization in extension is as a rule best obtained in a base hospital by plaster dressings, put on under an anesthetic.

Frequent and painstaking dressings, with or without irrigation, and the maintenance of free drainage are of great importance in overcoming sepsis.

Prophylaxis is better than corrective treatment in the avoidance of ankylosis of joints, and contractures of muscles and tendons.

SIMULATION OF ESOPHAGEAL STENOSIS BY EXTENSIVE CARCINOSIS OF THE LESSER CURVATURE OF THE STOMACH.

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IN the classic description of a typical esophageal stenosis, the symptoms are always described

with such accuracy that it would appear that there would be no difficulty in diagnosing such a form of disease. This description runs about as follows: There is difficulty in swallowing, which begins either instantly or comes on gradually, increasing steadily with the continuance of the disorder. At first only solid particles pass with difficulty, and many authors note that fat meat, for instance, can be swallowed much more readily than lean; finally, only liquids can be ingested, and, at last, even these, only when taken in very small quantities.

Unless taken with these precautions, the greater portion is either immediately regurgitated or it remains some time in the esophagus and is then at a later period, without reference to taking of food, regurgitated in a decomposed condition, mixed with a large amount of mucus. Under these conditions, the described patients emaciate rapidly.

In other cases the passage of food into the stomach is only temporarily restricted, or an entire meal may be taken with ease, while others cannot pass the obstruction; this is explained by cardiospasm or by the presence of diverticulum. Very often the patients complain of pain while swallowing, which may be either localized under the sternum or may extend along the entire esophagus.

The patients rarely describe this ejection of food as vomiting, because it comes in small quantities, but speak rather of eructations of food. The peculiarity of this material which is ejected is that it is either just as taken, or is decomposed or fermented with a sour yeasty odor, but never contains hydrochloric acid.

The former description, of course, differs emphatically from the ordinary description of cancer of the body or pylorus of the stomach, in which the pain is situated farther down and is more of a paroxysmal character; the ejection of food, too, is more periodical, and in much larger quantities, containing more often digested blood, which gives it its peculiar coffee-ground appearance.

When a mass can be discovered in the abdomen, diagnosis is fairly well assured, but the cachexia in gastric carcinoma is not necessarily any greater than that of esophageal.

Now experience has taught me, as well as others, that there are forms of carcinosis of the stomach which are not so clearly defined as those of which the classic symptoms have been given; in other words, they lie upon the border line between these two forms, and often require a great deal of ingenuity in order to differentiate them. Take, for instance, the vomitus or the material regurgitated; both are usually free from hydrochloric acid and are in more or less of a state of fermentation, in which the lactic acid predominates.

True, Boas-Oppler bacilli are never found in the former, but blood may be present in both, though generally when coming from the esophagus, it is bright red, and not dark brown. The stomach tube, too, though of great aid, sometimes fails to inform us which condition is present. It may show no beginning of narrowing of the esophagus, at one period, when the patient shows little or no evidence of cachexia, and, as has been my experience, four months later fail to pass when the patient exhibited all the evidences of advanced malignant disease. Then, too, the tube will meet obstruction at a point beyond which it should go through the cardia (45 cm.), and leave one in doubt whether he is in a diverticulum, or has run against obstruction on the gastric side of the cardia, due undoubtedly to excresence of a malignant growth, which obstructs the further passage of the tube. Even the x-ray has not proven absolutely reliable in diagnosing these respective conditions. In two instances, at least, which will be described more fully, in the case histories to follow, bismuth remnants have been found in the esophagus 30 minutes after it was taken, and yet, operation showed an extensive infiltrating carcinosis of the lesser curvature, instead of one in the esophagus.

Furthermore, in very small contracted stomachs, also produced by carcinoma, not situated at the pylorus, the bismuth, or rather the solution in which it is given, completely fills the diminutive stomach and leaves a portion in the esophagus.

The deglutition sounds in my hands have proven very unsatisfactory. Unless in a prone position, the second sound very often fails to be delayed or even missed, apparently on account of the rapid passage of the water from the pharynx to the stomach. As these sounds are not always clearly distinguished in the perfectly normal individual, it can be plainly seen that their absence is not of very great significance in detecting the presence of stenosis. In true stenosis, however, patients complain more often of a feeling of obstruction in the gullet much lower than that experienced in the well known globus hystericus, which is located more particularly by the patient in the throat. In addition, this true sensation of obstruction, due to real stenosis, can often be overcome by the patient's drinking large quantities of water, while the former is unaffected by such treatment.

Blood upon the end of the stomach tube or sound, when withdrawn, is of course never found except in cases of ulceration or of a malignant growth, and according to my experience, is not nearly so common as we would be led to understand. When found, it is vastly more significant of esophageal growth.

The majority of patients complain of regurgitations of glairy mucus, not unlike the condition known as waterbrash, but the fluid is much less in quantity and thicker. This regurgitated material seldom contains food particles and is rarely blood-stained, unless a diverticulum has been formed above the constriction.

Hoarseness and aphonia, when present, are due to pressure of the growth upon the recur-

rent laryngeal nerve, and while in my experience are rarely found, are very suggestive of the presence of an esophageal growth.

As to the esophagoscope, I have had little or no experience; one of my patients, however, had a perforation of the bronchus, produced by this instrument, in the hands of a very skilled and experienced operator. Outside of an annoying cough and bloody expectoration for several days, no harm seemed to arise, and the man lived for six months. In illustration of these difficulties of diagnosis, the following cases are reported.

CASE 1. D. M., male, 54 years of age, teamster. He had been a vigorous, active man and never sick until eight months previous to the date of examination. His illness began at that time, with eructations of gas and fluid on rising; the taste was sometimes bitter and sometimes sour. Being employed by a brewery, he had been accustomed to drink from ten to twelve glasses of beer daily.

At present he has lost 35 pounds; has pain after eating, which persists for two or three minutes; swallows easily, if warm food is taken, but regurgitates cold articles of food. He sleeps well at night; his bowels move only with laxatives, and he has a slight burning in the epigastrium when the stomach is empty.

Physical examination showed a man distinctly cachectic but he had no jaundice. Two hours after a meal of noodle soup, potato and meat, the introduced tube met with obstruction and could not be passed in three attempts. The end of the tube was covered with a glairy mucus, which showed no reaction for hydrochloric acid and there were no blood stains. The stomach extended one finger's breadth below the navel, which lower border could be easily seen; there was no succussion and no enlarged glands either in the supraclavicular region or in Douglas's pouch. No mass could be felt. The liver was not enlarged or nodular. The urine was high-colored, contained no albumin or sugar and no bile, but gave an excessive Ehrlich aldehyde reaction.

On a second attempt made two days later, the tube brought up 50 c.c. of sour smelling gastric contents without free hydrochloric acid and with marked lactic acid reaction. There were many long bacilli. The x-ray showed a much enlarged and prolapsed stomach, extending below the iliac crests with twenty-four hours' residue.

Based largely on the x-ray findings, a laparotomy was performed by Dr. Brewster, who found a large malignant mass, extending along the lesser curvature and involving the cardia, but not the pylorus. A jejunostomy was done, but death occurred six days later.

In this case special reference must be made to the difficulty of deglutition. This was apparently one of the earlier symptoms, and one to which the patient's attention was first called.

This, as can be readily seen, was not absolute, but occurred only at times, and as the patient noted, usually much less serious when warm food was taken than when cold articles of food were eaten.

The obstruction offered to the passage of the soft tube was also periodic and rather unexplainable. That a tube should pass at one time, and meet with complete resistance at another, can, of course, be due only to complicating spasm of the cardia. The point of obstruction, can, of course, not be readily determined by means of the soft tube, and where one suspects malignant disease, there is some hesitation in the employment of the hard sound; still the inference can usually be drawn that the obstruction in such cases as these, is at or near the cardia.

In this case, too, as can be noted, no blood was produced by the introduction of the tube against the growth. A residue, shown by the x-ray examination, twenty-four hours after the ingestion of the bismuth is extremely rare, particularly when operation showed that there was no involvement of the pylorus.

The question may also arise in such circumstances as these, whether one is really within the stomach itself, or is in a pouch. The answer to this question can usually be determined by the presence of rennin, which is, of course, a feature of gastric secretion, and usually persists in the cancerous stomach, long after the hydrochloric acid is eliminated.

CASE 2. Mrs. G. D., female, 47 years of age, housewife. In the family history there was nothing significant. The patient had always been well to four years ago, when she had had recurrent attacks of diarrhea without pain. After a long period she had been restored to health.

After a short summer vacation, six weeks ago, the patient began to experience pain in the precordium and to regurgitate small quantities of food almost immediately after it was taken; in the words of the patient, she ate a few mouthfuls, which were ejected in less than five minutes, and then she could partake of a fairly large quantity, which would remain. There was no taste to the matter ejected, or rather, the taste did not differ from that of the food. Her bowels had been confined, and she had now been in bed three weeks, with poor appetite, and steadily increasing weakness.

On physical examination she was found to be very anemic, with a tongue which was clean but denuded of epithelium along the borders; her teeth were excellent; all reflexes were retained. A small soft supraclavicular gland was discovered at the base of the larynx on the left side. The heart and lungs were without significance. The abdomen was full. The outline of the lower border of the stomach was distinctly seen, which moved on respiration, extending nearly to the navel. This lower border could be distinctly felt, having the feeling of upholstery.

The area to the right of the median line was very much enlarged; there was no succussion. The right rectus was in a state of spasm, but no mass could be felt. The liver was not enlarged, but its area was encroached upon by the enlarged right stomach. No fluid could be discovered in the abdomen, but by personal information from the physician in charge, Dr. E. E. Hamblen, it was learned that it later accumulated.

The stomach tube met with resistance at about the level of the cardia and could not be introduced. The vomitus or regurgitated matter contained no free hydrochloric acid, but had a total acidity of thirteen. Long bacilli were detected in scanty

numbers. The urine was high-colored, contained abundant urates, a trace of albumin and increased urobilin, which was indicated by the very marked Ehrlich aldehyde reaction, and a trace of bile pigment. Hyaline (plain) and granular casts were present in large numbers, but there was no blood.

The x-ray showed no food in the stomach, but what bismuth was swallowed remained in the esophagus. An illy defined mass at the cardia was made out.

The patient was operated upon one month later by Dr. Daniel Jones, who found a malignant growth in the lesser curvature of the stomach, extending to and involving the cardia (verbal communication); a jejunostomy was done, but the patient died three days later.

Two noticeable peculiarities in this case were: first, the short duration; and secondly, the apparent absence of great emaciation. Here, too, though the symptoms pointed to the esophagus, rather than to the stomach, an inference which was apparently substantiated by the difficulty in the introduction of the stomach tube and the peculiarity of the regurgitation, the enlarged supraclavicular glands might mean malignant disease of either the esophagus or the stomach; the tense well defined gastric borders pointed to the latter.

The evidences of obstruction to the return of the blood to the right heart, shown in the passive congestion of the kidney, and the urobilin and bile pigment indicated a more or less extensive involvement of the subperitoneal glands. A peculiar feature was also found in the inability of the bismuth and buttermilk to pass through the constriction at the cardia, since in all other cases this occurred in sufficient amounts to enable the stomach to be fully portrayed.

In looking over the literature on the subject, two more cases were found, which on account of their similarity to those already described, I venture to again report.

(1) Case 3. H. G., male, 64 years of age.

Previously in good health, he began to experience after bodily exercise, severe pain in the left thorax, which was at first diagnosed as intercostal neuralgia. The pain was at first periodical, but later became more intense and of longer duration; emaciation soon followed.

Upon examination, it was found that the soft stomach tube met with obstruction at the level of the cardia, but with some delay overcame this and entered the stomach. There was absolute absence of free hydrochloric acid, with distinct diminution of the total acidity. The fasting stomach was always free from food remnants.

On account of the refusal of the patient, no operative intervention was undertaken. The subsequent history of the patient, which consisted in the development of severe vomiting, icterus and metastatic malignant masses in the liver, confirmed the previous diagnosis of cancer of the lesser curvature, involving the cardia. Death soon followed, but no autopsy was allowed.

A second instance of this peculiarity was also found, reported by Dr. W. Bauermeister.

(2) Case 4. A. B., male, 56 years of age, carpenter.

He was always well up to six months ago. Then he began to have under the sternum, a feeling of pressure and found that often a solid article of food apparently met with obstruction, so that he had to cease momentarily from eating, and take a large swallow of some fluid, which removed this unpleasant sensation. He experienced also, at times, regurgitation, by which fluids were brought up, but never solid remnants. During the act of eating, too, an occasional mouthful returned, which compelled him to cease with his meal for a short time. During this period, however, he had lost about 20 pounds in weight.

The patient was extremely anemic, his nutrition well maintained, while under the left costal border, some resistance could be felt. The tube was introduced without difficulty, removing 240 c.c. of fairly well digested contents, with acidities of 18 and 45.

It was noted that the first portion which flowed through the soft stomach tube was stained with blood and also the last. His condition continued to deteriorate, until six months later, he was unable to take anything but milk and raw eggs, and there was extensive regurgitation of mucus from the esophagus. At this time, neither the soft tube, nor a sound of any diameter could be introduced beyond 39 cm. from the upper teeth, but there was never blood upon the instrument. The introduction of the esophagoscope showed no growth in the gullet, but a thickening of such a character that the instrument remained at a depth of 34 cm., beyond which a deeply edematous condition of the mucous membrane could be discovered.

Ten days later the patient died, and the autopsy showed a broad, superficial, ulcerating carcinoma of the lesser curvature that ceased 1½ cm. before reaching the true cardia. The obstruction was due to extensive edema which had extended up the esophagus to within 37 cm. of the teeth.

The author's conclusions are, that the actual cause of the obstruction, which has been noted in two of my own cases, is not due to cardiospasm, nor to true malignant stenosis, but is due to this edema, wherever there is a widespread carcinosis of the lesser curvature, which approaches the cardia.

The practical importance of this difference of diagnosis, of course, is not great. In either case, there is left the patient only a serious operation—that of gastrostomy—to keep him from starvation, when the obstruction has become so great that no food can pass through the constriction. We should be much less ready, however, to perform operations, if we were assured that a general carcinosis of the stomach existed.

A divulsion, too, when carcinoma exists is always attended with much danger of perforation and even the newer method of distention, by means of a ball filled with air, is not without its peril. Still, there is always a personal satisfaction in reaching a correct diagnosis, and in summing up, we may say that when we come across symptoms of dysphagia, relieved by water

drinking, with inability to pass a soft tube, or difficulty in its passage at a point near the cardia, with eructations of food without hydrochloric acid and with rennin present, without a tumor in the abdomen but rigidity of the gastric borders, we are not to decide at once that we are dealing with esophageal stenosis, but sometimes with general carcinosis of the stomach.

Naturally, we must restrict this statement to those ages at which cancer is common, but we cannot absolutely exclude such a diagnosis during the earlier period of life, since such instances of carcinoma as early as forty years of age have been observed by me and by others. There is, of course, a possibility of syphilis of the esophagus and stomach, but with the negative Wassermann test such can be readily excluded. As in a long continued dysphagia, existing in one instance under my observation, according to the patient, for twenty years, our conclusion must be at once that it is not malignant, and is due to spasmodic constriction, or to a diverticulum.

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A NOTE ON THE SIMULATION OF DIABETES MELLITUS.

BY GEORGE BLUMER, M.D., NEW HAVEN, CONN.

THE simulation of diabetes mellitus is probably not of very frequent occurrence. The textbooks almost ignore the subject; special treatises on diabetes frequently fail to mention it; and even works on the simulation of disease discuss it in a somewhat casual and fragmentary way. The matter is, however, not without interest both from a casuistic and a medico-legal viewpoint. A case recently seen illustrates certain points of interest, particularly the fact that the fraud may not be so obvious at first sight as might be suspected.

The patient, Mrs. X., was an Irish American, 33 years of age, who was sent to me by a physician in a neighboring town for a pruritus of the vulva.

The patient's family history was entirely negative. Her parents and her brothers and sisters were all alive and well, and there was no history of nervous or mental disease in the family.

As a child the patient had had measles, whooping cough, chicken-pox, mumps, tonsillitis, and scarlatina. There were no complications with any of these diseases. She had had no serious disease as an adult. An ovarian cyst, and incidentally the appendix, was removed six years ago. The menstrual history was normal. The patient married at twenty-four and had one miscarriage at two months, four months before consulting me. There was no venereal history. The patient had always been a good eater, fond of meat, sweets, and candy. She was not on a special diet at the time she consulted me.

The patient dated the pruritus vulvae from a period twenty months before I saw her. It had appeared rather suddenly, and had been present since that time. It varied in intensity, and tended to be worse at night. It was severe enough at times to interfere with sleep. Urination increased the pruritus. There was no increase in the output of urine. The patient stated that she felt weak, but thought this due to loss of sleep. She had lost twenty pounds in the preceding nine months. There was no general pruritus. The appetite was not abnormal. The patient was very thirsty at times; at other times she "despised" water. She stated that occasionally she had severe frontal headaches with anorexia and even slight nausea. With these her face was flushed. She was more nervous than usual and tended to be constipated.

The physical examination was almost negative. The patient was overnourished and had an excellent color. Her tongue was clean. Her pulse was small and regular and normal in rate. Her blood pressure was 120 systolic and 80 diastolic. The thyroid was normal and there were no glandular enlargements. The lungs were clear. The heart was negative except for a rather short, moderately harsh systolic murmur over the aortic cartilage. The abdomen was negative. The liver and spleen were not enlarged. The kidneys were not palpable. There was no edema of the shins. The pupillary and tendon reflexes were lively. No mammary or ovarian tenderness was present. No sensory changes could be detected.

The patient brought with her a single specimen of urine, stating that her urine had been tested before and that sugar had been reported by at least two physicians. The specimen presented was light amber in color, hazy, acid in reaction, had a specific gravity of 1.057, was free from albumen, and gave a very slight reaction for sugar with Fehling's solution. With Benedict's solution the copper was reduced in an amount that was estimated as representing about 0.25% of sugar. The polariscope showed 8.5% of a dextro-rotary substance.

The patient was requested to send a twenty-four hour specimen of urine and was instructed how to collect it. On its arrival the amount was 650 cubic centimeters; it was slightly cloudy, acid in reaction, and had a specific gravity of 1.060. The urine contained the faintest possible trace of albumen, no acetone, no diacetic acid and no indican. Tests for sugar showed a negative reaction with Benedict's solution and Nylander's solution. The polariscope showed 11.25% of a dextro-rotary substance. After inversion by heat and acid, copper was reduced and the polariscope showed 3.9% of a laevo-rotary substance. Rotating substances other than sugars having been excluded, it was clear that the substance originally present in the urine was sucrose, and that inversion had transformed it into dextrose and levulose, the latter preponderating and causing the laevo rotation. Professor Lafayette Mendel was kind enough to examine the specimen and to confirm the diagnosis of sucrosuria.

The patient's physician was communicated with and informed of the findings. On account of the local symptoms he was able to suggest a bladder examination and to obtain a catheterized specimen of urine. This specimen when examined in the lab-

oratory here was absolutely free from sugar of any kind, as were subsequent specimens obtained by catheterziation and examined by the patient's family physician.

It was evident then that the patient was not suffering from diabetes mellitus, but that she had purposely added sucrose to the urine in order to simulate this disease. The psychology underlying this deliberate deceit was not perfectly clear. The patient was not hysterical in the strict sense of the term and did not show the physical manifestations of hysteria. She was distinctly neurotic, and according to her family physician had been known on one previous occasion to feign illness in order to compass certain aims in connection with her family life. This was probably the explanation of the simulated diabetes, though the family physician could not discover what particular object the patient had in view.

The simulation of diabetes probably dates back to an early period in the popular knowledge of the disease. Heller cites cases in 1858 (*Oester. Zeit. f. Prakt. Heilkunde*, 1858, vol. iv, pp. 419 and 481) and states that the laity were acquainted with the disease at that time. It is probable that in German-speaking countries widespread popular knowledge of the urinary changes was developed earlier than in other countries on account of the popular name "zuckerkrankheit."

The simulation of the disease may take three forms: (1) the addition to the urine of sucrose; (2) the addition to the urine of glucose; and (3) the production of an artificial glycosuria by the consumption of phloridzin or phloroglucin. The last named form of simulation is suggested by Stier as a possibility though he cites no actual cases (Stier in Becker, Die Simulation von Krankheiten, Leipzig, Thieme, 1908).

Simulation of diabetes mellitus is easier than that of many other diseases because of the lack of objective physical phenomena in mild and uncomplicated cases, and because the urine in such cases presents no characteristic chemical abnormalities aside from the presence of sugar. The detection of sucrosuria is simple if certain precautions in the care of the urine are observed. Failure to observe these is what has led to failure to detect the imposture. If the urine is allowed to stand after collection, especially if in a warm place, inversion of the sucrose into dextrose and levulose may occur either as the result of bacterial action or even apart from this. In such a case reduction of copper will occur and will throw the physician off his guard, unless he happens to note the great disparity between the degree of copper reduction and the specific gravity of the urine. In the extraordinary case of Abeles and Hoffman (*Wiener Med. Presse*, 1876, vol. xvii, pp. 1507 and 1537) and in our case such inversion did take place, and in both instances misled some of the physicians who tested the urine.

Where the patient is unusually intelligent and well informed, glucose is added to the urine and detection of the fraud becomes difficult, especially if there is nothing to arouse the suspicion of the physician. A patient who is intelligent enough to add glucose to the urine has usually read up the subject in an encyclopedia or text-book and may not only give a typical history, but may even add water to the urine with the sugar in order to simulate the polyuria and do away with the disparity between sugar content and color and quantity of urine which might put the observer on his guard. Stier cites one case where a well educated man under accusation for certain moral delinquencies actually did this. In Abeles and Hoffman's Karlsbad patient sucrose was first added to the urine, but the patient returned to them the following year with glycosuria and actually introduced the glucose into her bladder so that catheterized specimens obtained at periods named by her showed a saccharine urine. Most simulators are not so intelligent as this and are apt to make the mistake of adding too much glucose so that such an unusual urinary picture is produced that suspicion is aroused.

The detection of the simulation depends in the first place on the occurrence of some factor which arouses suspicion in the mind of the physician. In soldiers or in cases with a medicolegal bearing this suspicion is much more likely to be aroused than it is in cases occurring in ordinary civil practice. The detection of sucrosuria is, as stated, simple if the urine is examined fresh. In this case there is no inversion of the sucrose and no copper reduction, and we have a high specific gravity urine with large amounts of dextro-rotary sugar shown by the polariscope, which on artificial inversion splits to dextrose and levulose. Even where some spontaneous inversion has occurred the tremendous disproportion between the copper reduction and the specific gravity should at once cause suspicion; also the fact that there is no increase in the amount of urine and that the color is high. The simulation is, of course, confirmed by the examination of urine passed by the male patient in the presence of the examiner or obtained by catheterization from female patients—preferably after washing out the bladder with saline solution.

The detection of simulated glycosuria is more difficult if the patient is intelligent enough not to put in too much glucose. Formerly, commercial glucose was not chemically pure and contained sugar intermediate between dextrin and dextrose. This sugar showed much higher polariscope readings than it did copper reduction and could be detected by this means, as Abeles and Hoffmann showed in their case. This is still the case with some commercial glucose, but would not be the case if the patient used a chemically pure product. When suspicion is aroused, however, catheterized specimens will clear up the case; though, in view of the experience of Abeles and Hoffman, even these must be

obtained when the patient does not suspect their purport.

If there is suspicion that an artificial diabetes is being produced by the consumption of phloridzin or phloroglucin the isolation of the patient away from possible supplies of the drugs in question would seem to be the only rational procedure.

NOTES OF A CONFERENCE ON THE MEDICAL AND SOCIAL ASPECTS OF SYPHILIS OF THE NERVOUS SYSTEM.

HELD AT THE PSYCHOPATHIC HOSPITAL, MAY 27, 1915.

(*Series continued from page* 15).

IX.

THE DEVELOPMENT OF THE GOLD SOL "PARETIC" REACTION AS COMPARED WITH THE "CEREBROSPINAL SYPHILITIC" TYPE, CONSIDERED FROM THE TIME NECESSARY TO FORM A COMPLETED REACTION.*

BY H. C. SOLOMON, M.D., BOSTON,

AND

E. S. WELLES, BOSTON.

THE "cerebrospinal syphilitic" type reaction, as most characteristic, is strongest in the third, fourth and fifth tubes, grading off in the first and second tubes and those of the high dilution. Less characteristic is a curve reaching its height in the first tube, but not going as high as 5 plus reaction.

If one charts the gold sol curves at short intervals in the development of the "paretic curve," one finds that there are curves having the form of the second type mentioned of cerebrospinal syphilis reactions, *i.e.* at the end of three or more hours it may have progressed no farther than a 3 plus, while at the end of 12 hours it will have reached a 5 plus reaction. But, in quite a considerable number of cases, one finds that the reaction begins most strongly in the third, fourth, and fifth tubes, and is weaker in the first and second and the higher diluted tubes, so that read at an early time, the curve will be identical with that of the so-called typical "cerebrospinal syphilitic" type, *i.e.*, it has gone through the same reaction, but has finally gone farther, whereas the "cerebrospinal syphilitic" type, that started the same, has halted in its development, or, as one might possibly express it, is a *forme fruste* of the "paretic" reaction.

The following charts of the development of the "paretic curve" by three fluids from paretics are illustrative examples.

CHART I.

	1	2	3	4	5	6	7	8	9	10
15 minutes	2	2	3	3	3	2	—	—	—	—
30 "	2	2	3	3	3	3	—	—	—	—
45 "	2	2	3	3	3	3	—	—	—	—
1 hour	2	2	3	3	3	3	—	—	—	—
1¼ hours	2	2	3	3	3	3	—	—	—	—
1½ "	3	3	3	3	3	3	—	—	—	—
1¾ "	3	3	3+	3+	3+	3	—	—	—	—
2 "	3	3	3	3	3	3	—	—	—	—
2½ "	3	3	4	4	4	3	—	—	—	—
3 "	3	4	4	4	4	3	—	—	—	—
18 "	5	5	5	5	5	4	—	—	—	—

CHART II.

	1	2	3	4	5	6	7	8	9	10
15 minutes	2	2	3	3	3	3	3	2	1	±
30 "	2	2	3	3	3	3	3	2	1	±
45 "	2	2	3	3	3	3	3	2	1	±
1 hour	2	2	3	3	3	3	3	2	1	±
1¼ hours	2	2	3	3	3	3	3	2	1	±
1½ "	3	3	3	3	3	3	3	3	1+	1
1¾ "	3	3	3	3	3	4	4	3	2	1
2 "	3	3	3	3	4	4	4	3	2	1
2½ "	3	3	3	3	4	4	4	3	2	1
3 "	3	3	3	3	4	4	4	3	2	1
18 "	5	5	5	5	5	5	5	3	2	1

CHART III.

	1	2	3	4	5	6	7	8	9	10
15 minutes	2	3	3	3	3	3	1	1	—	—
30 "	3	3	3	3	3	3	+	+	—	—
45 "	3	3	3	3	3	3	+	+	—	—
1 hour	3	3	3	3	3	3	+	+	—	—
1¼ hours	3	3	3	3	3	3	1+	1+	—	—
1½ "	3	3	3	3	3	3	2	2	±	—
1¾ "	3	3	3	4	4	4	2	2	1	—
2 "	3	3	3	4	4	4	2	2	1	—
2½ "	3	3	3	4	4	4	2	2	1	—
3 "	3	3	3	4	4	4	2	2	1	—
18 "	5	5	5	5	5	5	2	2	1	—

X

SYPHILIS AND THE PSYCHOPATHIC HOSPITAL: NOTES ON MEDICAL AND SOCIAL PROGRESS, ESPECIALLY IN NEUROSYPHILIS, BOSTON, MASSACHUSETTS, 1915.*

BY E. E. SOUTHARD, M.D., BOSTON,

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ABSTRACT.

* Being S. B. I. Contribution whole number 130 (1915.33). (*Bibliographical Note.*—The previous contribution was by E. E. Southard and H. C. Solomon, entitled "Latent Neurosyphilis and the Question of General Paresis—sine Paresi," BOSTON MEDICAL AND SURGICAL JOURNAL, Vol.. clxxiv, No. 1, page 8.

* Being S. B. I. Contribution whole number 131 (1915.34). *Bibliographical Note.*—The previous contribution was by H. C. Solomon and E. S. Welles, entitled "The Development of the Gold Sol 'Paretic' Reaction As Compared with the 'Cerebrospinal Syphilitic' Type, Considered from the Time Necessary to Form a Completed Reaction," BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxxiv, No. 2, page 50.

V-VI. Some Anthropological Possibilities in Syphilis Research. (Gregg working with Bryan's Formulation; A. E. Taft's Brain Measurements.)

VII-VIII. Psychological Tests. (Work of V. V. Anderson with Binet Tests; of Bazeley and H. M. Anderson with Binet and Yerkes' Point Scale Tests.)

IX. Work on the Chemical and Cytological Side. (H. C. Solomon, H. O. Koefod, E. S. Welles.)

X. Summary.

SYPHILIS AND THE PSYCHOPATHIC HOSPITAL.

WHETHER we regard the Psychopathic Hospital[1,2] under its aspect as (a) *receiving hospital* for urgent mental cases, or as (b) *observing hospital* for difficult and border-line mental cases, or as (c) *teaching clinic* in psychiatry for medical graduates and undergraduates, or as (d) *dispensary center* for mental hygiene and psychosocial service, or as (e) *research institute* and experiment station for the Commonwealth's scientific officers, we shall not fail to find the problem of syphilis[3-180] standing out everywhere in bold relief. It is true that mania and delirium of whatever cause, and especially mental disease immediately due to alcohol, form the initial problem of any institution fashioned—like the Boston institution—on the plan proposed in general terms by Griesinger in his memorable paper of 1868. But, whereas urgent mental cases, whether alcoholic or non-alcoholic, form an inevitable problem in the *Stadtasyl* of Griesinger's dream and the world's sporadic partial realization—for example, alcoholic cases form about one-ninth of our intake of patients in the Boston clinic—and whereas the needs of special treatment of maniacal, delirious, and overactive patients actually dictate structural conditions in the hospital building—for example, 12 tubs for prolonged baths in our hospital of 110 beds with 5 admissions daily, as well as special conditions in ventilation and noise-proofing—yet, after all, these conditions are not absolutely essential to a psychopathic hospital. A psychopathic hospital may perform acceptably almost all the functions listed above (with the exception of the function of receiving numerous urgent cases) even if the hospital be placed in non-metropolitan surroundings or in a small university town like Ann Arbor, Michigan. In point of fact, the delirium tremens problem of a metropolitan district like that of Boston, Massachusetts, having a million and a quarter inhabitants, should perhaps be handled by means of a separate institution with highly specialized equipment; such at least was argued for by the Legislative Commission on Drunkenness, on which I had the honor of serving in 1913. And, if a special hospital for delirium tremens (which disease we do not count in Massachusetts as strictly speaking mental in the sense of a condition to be supervised by the State Board of Insanity) were to be established, the chances are that the more markedly psychopathic alcoholics (victims of acute alcoholic hallucinosis, Korsakoff's disease in acute phases, etc.) might well be handled by the specialists in charge of such a hospital for delirium tremens[19]

But, with these alcoholic problems solved or removed, there would still remain the problem of syphilis,—a problem not nearly so likely to be soon solved or removed as that of alcoholism. Specialized clinics like the Psychopathic Ward of the University of Michigan at Ann Arbor or the selected clinic of the Psychiatric Institute of the New York Lunacy Commission associated with the Manhattan State Hospital, Ward's Island, New York, have found attractive material in syphilis of the nervous system. The Henry Phipps Psychiatric Clinic of the Johns Hopkins Hospital, Baltimore, Maryland, has also dealt with this material. A great impetus was given to these studies by the Nissl-Alzheimer work on plasmocytosis, by Wassermann's special application to syphilis of the ideas of Bordet and Gengou, by Plaut's application of the Wassermann method to the cerebrospinal fluid, by Ehrlich's invention of salvarsan, and especially in this country by the Noguchi-Moore discovery of treponema in paretic tissues and by the ingenious proposals of Swift and Ellis as to salvarsanized serum.

For convenience I place in the bibliography[4] references to papers published from institutions under the supervision of the Massachusetts Board of Insanity during the last few years. What, then, is the size and nature of the syphilis problem as faced by the public and social agencies of a state like Massachusetts, especially the problem of syphilis of the nervous system, or, briefly, of neurosyphilis?

The conference of which this is the concluding paper is the fifth of this general nature (I, First Annual Conference on the Medical and Social Work of the Psychopathic Hospital, Boston, Massachusetts, held June 24, 1913; II, Conference on Some Medical and Social Aspects of Mental Disease Due to Alcohol, held November 24, 1913; III, Conference on Nursing Problems, held February 16, 1914; IV, The Second Annual Conference on the Medical and Social Work of the Psychopathic Hospital, held June 26, 1914), and the seventh, if two scientific programs be added. The program of the Norfolk District Branch of the Massachusetts Medical Society was presented at the Psychopathic Hospital, March 31, 1914, and the program of the Boston Society of Medical Sciences on April 28, 1914.

The underlying idea of each conference has been to take account of stock and provide the best concrete program on which locally to proceed.

SOME LABORATORY STATISTICS.

I am informed by Dr. W. A. Hinton, in charge of the Harvard Neuropathological Testing Laboratory* during 1914, that 13% of the blood

[1] The bibliography contains a list of syphilis publications of The State Board of Insanity and the Psychopathic Hospital.

* This has now been taken over by the State Board of Health, with Dr. Hinton as assistant director, in charge of testing.

sera tested during that year were positive. These were drawn from seventeen public or semi-public institutions, and to a minor extent from private sources. In 1913[20] the same laboratory had found 23% positive. The institutions have become increasingly suspicious as to the possible presence of syphilis in their patients. Still these cases are obviously selected, and the community index of positive Wassermann tests must be lower than 13%. The figures are based on 6139 and 7748 tests in 1913 and 1914 respectively.

During 1914 the cerebrospinal fluids proved 33% positive, just as they had been in 1913. Possibly this percentage, based on 1566 cases, indicates with some certainty the chances that an "organic" disease of the nervous system has of being syphilitic, although the figures deal with some cases in which the cerebrospinal fluid was examined as a precautionary measure in the absence of "organic" symptoms and on the basis of a positive blood serum.

In 1913 I had occasion to report the extraordinarily high percentage of positive sera (44%) among the girls of the Massachusetts Reformatory. During 1914 it is only by counting "doubtful" reactions as positive that such a percentage can be obtained (45%). The clearly positive sera were found in 20%.

Last year I contrasted this high percentage of the Massachusetts Reformatory for Women (44%) with that of the Worcester State Asylum, a transfer institution for chronic insane of both sexes (2.9%). During 1914 the percentage at Worcester was 6% or, including "doubtfuls," 16%.

Meantime the Danvers Hospital and the Worcester Hospital, representative receiving hospitals, were taking in as routine 12% and 10% respectively of clearly positive cases and 24% and 28%, respectively if "doubtfuls" are counted.

In 1913 the Psychopathic Hospital found cerebrospinal fluids negative in about 63%, in 1914 in about 73% (239 of 327 fluids). This, I fancy, indicates a definite policy on the part of our officers to look on cases as possibly syphilitic with increasing frequency. A little over one in four cases has proved positive.

ECONOMIC NOTES.

Miss Mary C. Jarrett has continued her studies[21, 22, 23, 24] of the statistical and economic side of psychopathic social service in general by some similar observations in the syphilis department. If we combine her conclusions with the general statistics of syphilis in the psychopathic hospital as presented by Gregg, and with the obvious facts as to the cost of salvarsan and other remedial agents, it is easy to show that the state might find it very profitable to engage in work in neurosyphilis, spending in the first year about $5000.

Also of great economic importance is the cost of salvarsan therapy in neurosyphilis. During the present war the cost of salvarsan has been subject to fluctuations, and its future cost is, of course, problematical. However, it seems desirable to give salvarsan, mercury and iodide to appropriate cases of syphilis of the nervous system. In order to estimate the effects of treatment with any of these drugs in any of their forms of application, it is certainly necessary to keep up treatment in each case for at least three months. To estimate the ultimate results is naturally impossible at the present time. On somewhat empirical grounds, the Psychopathic Hospital physicians have come to the opinion that only after 10 injections could we feel that a reasonable trial of the drug had been given. On the basis of 10 cases classified as:

"General Paresis" 6
"Juvenile Paresis" 2
"Cerebrospinal or general neurosyphilis" 2

and omitting the cost of the preparation of the solutions, instruments and the time expended, the total cost has been a little over $400, and in fact, works out to an average of $40.26 per patient.

The expenses of these treatments have been paid in practically all cases by the patients themselves, or by their friends, inasmuch as the Psychopathic Hospital has had no funds from which to draw for such treatments.

ADLER'S POINT IN SALVARSAN THERAPY.

Adler's work on salvarsan therapy[13] has made a small step forward in the understanding of those cases that are injured or even killed by salvarsan. Adler's plausible suggestion is that these cases are really cases with individual idiosyncrasy in elimination of arsenic. Adler has found a case which eliminated arsenic from the blood only after the extraordinary interval of 16 days. It would be homicidal to keep administering arsenic to such a case at the usual intervals.

If the blood proves to free itself of arsenic at the usual interval, say 24-48 hours after exhibition, then salvarsan may well be administered at intervals of three days.

To guide salvarsan therapy in a systematic manner, Adler accordingly advises an initial determination of the patient's elimination-rate.

SOME ANTHROPOLOGICAL POSSIBILITIES IN RESEARCH.

Gregg, studying 100 of our paretic cases,[14] found 83% of North-European racial stock, 82% of subnormal weight (average 23 pounds below normal) and 68% of normal or supernormal height. The typical paretic, then, tends to be a rather tall and thin subject of North-European stock, tends in fact to be of the carnivorous human type as suggestively defined by Bryant (see his lecture[25] at the Psychopathic Hospital, January 4, 1915). Gregg also points out how infrequently paretics manifest cutaneous syphilis. Gregg's work points in the direction of special individual susceptibilities as at the basis

BRYANT'S TABLE IV.

HERBIVOROUS.		DUCTLESS GLANDS.		CARNIVOROUS.
Small.	Minus	Genital	Plus	Large, reproductive functions +.
May be large or cystic; adiposis, gigantism, acromegaly.	Plus	Hypophysis	Minus	Variations slight.
Usually large.	Plus	Pancreas	Minus	Usually small.
Calcium balance normal	Plus	Para-Thyroid	Minus	Tetany not infrequent.
Normal or large.	Plus	Thymus	Minus	Usually deficient, may be very large.
Myxoedema	Minus	Thyroid	Plus	Exophthalmic goitre.
Always large, especially cortex	Plus	Supra-Renal	Minus	Always small, vagotony frequent.

of the paretic form of neurosyphilis. Perhaps the principle should be extended to other forms of neurosyphilis.

Such ideas should be developed and extended in several directions, such as that of the anthropological and psychological study of types of character in neurosyphilitics. For instance, we need more knowledge in the more general direction of character-types in Bryant's human carnivores and herbivores, of which there is already some suggestion in Bryant's tabulation. Bryant, in fact, states that the genital glands in his "carnivorous" type are large and the reproductive function in excess; the reverse, he states, holds true of his "herbivores." In evaluating such ideas, it must be remembered that most human beings are more or less evenly balanced between these so-called "carnivorous" and "herbivorous" factors.

At this point Bryant's Table IV may be reproduced, suggesting as it does certain possibilities as to ductless glands in the so-called types. We are doubtless far from able now to suggest differences in the mutual control of these glands, based upon their superior or inferior development.

As to forms of syphilis itself, Bryant believes that the carnivores are more subject to paresis and tabes, the herbivores to ulcer and gumma.

A further possibility of research lodges in the systematic study of brain pattern in paretics to learn whether the original brain plan possessed by paretics is simpler or more complex than normal. Annie E. Taft and the writer have been attempting to develop a method of stating approximately the degrees of complexity in various brain patterns, using the material of the State Board of Insanity as embodied in its large and perhaps unrivalled collection of brain photographs. The details of our method (counting sulci through a window of given size) are to be published elsewhere. I present a table in which certain differences between the complication of pattern in brains in general and that of paretics are shown.

(To be concluded).

Medical Progress.

NINTH REPORT OF PROGRESS IN ORTHOPAEDIC SURGERY.*

BY HARRY C. LOW, M.D.; ROBERT SOUTTER, M.D.; C. HERMANN BUCHOLZ, M.D.; MURRAY S. DANFORTH, M.D.; AND ROBERT B. OSGOOD, M.D. BOSTON.

(Concluded from page 25).

FOOT CONDITIONS.

Recently there has been much to lead us to look with more interest upon the flood of foot troubles that occur. The foot as a factor in human efficiency (Tyrell[27]) is being recognized industrially, and on the other hand, war has made it necessary to give the greatest attention to the care and treatment of feet in marching (Schuster[28]). Hygienic shoeing and the modern shoe in its influence upon the foot have been considered by various authors without definite conclusion. The weak and flat foot (Packard,[29] Marshall[30]) is looked upon by some as a symptom of general arthritic, postural or vascular conditions. It is undoubtedly true that attention to the prevention of these vascular, postural and arthritic conditions with the proper choice of shoes and care for the simple hygienic foot conditions would be sufficient to eliminate a part of the foot deformities that are so hard to relieve. Undoubtedly the feet should be considered from the engineer's point of view (Rowell[31]), and the complicated arrangement of bones and muscles offers much for discussion. At the end we may find ourselves studying and considering the individual and his particular type of foot.

Steindler's[32] work on the architecture of the tarsus is deserving of very careful study by all those interested in deformities of the foot.

In considering the operative aspects of certain foot troubles (Freiberg[33]) the fact that muscle spasm can nearly always be relieved by rest should make one reluctant to subject the patient to conditions worse than static. Rest without the suspension of function may often be obtained by mechanical or therapeutic measures.

Hibbs[34] observes that few people are willing to indulge thoroughly in the healthful exercise of walking, and believes this results in their muscle bound feet, due to a limitation of dorsal flexion. He makes a skin incision at the outer edge of the Achilles tendon, splits the sheath, and lengthens the tendon by longitudinal cut and holds it with sutures. He lays especial stress upon the after-treatment of three months in children and six months in adults. The foot is held in plaster, dorsally flexed for three weeks. Then walking, resist-

* This report is based on a review of 483 articles selected from about six hundred titles having to do with orthopaedic surgery appearing between August, 1914, and January, 1915. References are given to only such articles as have been selected for note and comment.

ant exercises to develop the anterior group of muscles, and in adults, ankle braces with stop catches are used. Thirty-eight patients have been treated in this way and in all the function of the foot has been so corrected that they walk normally and without pain. Comparing the results with those treated by conservative measures, he says that only by operation can satisfactory results be obtained and a normal muscle balance be assured.

(ED. NOTE: The editors' experience has not led them to believe that this should by any means represent a routine operation, but that its importance has been perhaps overestimated.)

In the discouraging forms of rigid, spastic flat foot, repeated forcible correction under ether has often failed on account of the indisposition of the patient to carry out the after-treatment. Saxl[10] uses local anesthesia for this, injecting 2 to 4 grams of 1% cocaine or novocaine solution into the astragalo-scaphoid joint or peroneal tendons. Various methods of quieting the muscle spasm by nerve paralysis or gradual manipulation seem to have no advantage over the complete relaxation in ether narcosis, which allows the foot to be most easily held in correct position when the plaster is applied.

In advocating the more general use of linear osteotomy in bone deformities, Bradford[11] is strongly in favor of this method instead of removing the head of the first metatarsal bone in hallux valgus. Forcing the osteotome through the tissue to a point on the bone just above the distal end of the metatarsal, he cuts through the bone and forcibly fractures the outer shell, leaving a gap at the outer side to be filled with organizing blood-clot and thus correct the valgus. Avoiding the extensor tendon, the bone can be divided near the joint, and the lateral deformity corrected without interfering with the weight-bearing qualities of the foot.

Katzenstein[12] induces hardening and shrivelling of over-stretched and relaxed ligaments responsible for flat foot and other deformities. He discovered by accident the effectual action of the tanning process which he employs and then proceeded to apply it systematically. He uses injections of formaldehyd under local anesthesia into the stretched ligaments. A plaster cast is then applied to hold the ligament in its contracted position. When the cast is removed after three or four weeks, the ligament is firm and hard. He gives an illustration of an apparently almost normal child of five cured of "extreme flat feet and inward bowed legs." He injected the formaldehyd into the tibionavicular ligament and into the median lateral ligament of each knee, with a plaster dressing for the three joints. He thinks that relaxed ligaments are the cause of deformity of bones far more often than is generally recognized. By detecting the loss of elasticity early it may be possible to ward off deformity and correct it by restoring the pull of the ligaments.

(ED. NOTE: This so-to-speak causal treatment of deformity seems to render apparatus superfluous. We have, however, seen no report of the results of this treatment in other surgeons' hands. We wonder whether this artificially produced hardening and shortening is likely to be permanent).

RICKETS, OSTEOMALACIA, FRAGILITAS OSSIUM.

Considering the etiology of rickets from two opposite points of view, the conclusions are very similar. Curle,[13] from his clinical experience, states that the two chief factors in the cause of rickets are the preponderance of carbohydrates in the diet and a lack of pure air. Koch[14] injected the streptococcus longus into young animals and an acute infection followed at once, gradually developing a chronic disease of the bone, apparently similar to rachitis in man. He also says that the dogs allowed to run about freely did not develop the bone trouble, or at least not in the same degree as those kept in stalls. His experiences suggest the injurious influences of secondary infection after the process of normal ossification has been upset by the acute infection. He does not believe any one organism is associated with rachitis and recognizes the importance of any factor that lowers the general bodily resistance for a long time.

Cavarzini[15] adds another to the 46 cases on record in which systematic epinephrin treatment cured osteomalacia. At the same time he cites 26 cases that have been reported in which little or no benefit was derived from the treatment. In some of the cases the epinephrin was stopped at the first sign of intolerance, so that the treatment had really no chance to display its efficacy. The hypophysis seems to be able to sensitize the adrenals, and hence combining hypophysis extract with the epinephrin treatment might enhance the action of the latter. He adds that there is much to sustain the assumption that deficient functioning of the adrenals interferes with the normal growth of the skeleton.

Every year more new cases of osteogenesis imperfecta are recognized and the number now well studied is over fifty. Glandular and medicinal treatment seems to be of little avail. Among others, Schabad[16] carefully analyzed the metabolism in a case and gives his conclusions. The calcium retention is below normal and the deficiency is best met by the administration of phosphorus and cod liver oil. The injection of calcium is of no advantage. Phosphorus excites a hyperphosphaturia in osteogenesis imperfecta in contradistinction to the hypophosphaturia seen in rachitis.

Ostheimer[17] has collected 193 of these cases under the title of fragilitas ossium, a name expressing the chief clinical symptoms, but making no attempt to express the specific cause. Whatever name may be given to this condition, it is to be remembered that the prognosis is nearly always fatal and that we have no definite line of treatment to follow at present and can only hope for guidance by the careful metabolic study of these cases.

BONE GRAFT, BONE TRANSPLANTATION, PERIOSTEUM, ETC.

The operative treatment of tuberculosis of the spine has had sufficient trial to allow one to make a judgment in its favor. Of 39 cases treated at the Mayo Clinic (Henderson[18]), the Albee method was used in 33; the Hibbs in 6. The oldest case was 52 years and only five were children. One-half were lumbar or low dorsal region, only one was above the mid-dorsal. Without going into detail it can be said that the results were very successful, nearly 75% being improved or cured with no operative fatalities.

(ED. NOTE: The great advantage of shortening of the treatment and hastening the cure of the disease is offered as a strong claim in favor of this procedure. Undoubtedly it does make the treatment more thorough and efficacious and thus hasten the curative healing process, but it does not, in our opinion, warrant any radical shortening of the protective treatment.)

Henderson lays stress on this point in keeping the patient in bed after the operation for one to six

months and insisting on a brace being worn for one year, preferably one year after cessation of all symptoms.

Ryerson[11] reports 37 cases of Pott's disease from his clinic, in which the Albee operation has been performed, and considers that the method has earned for itself a distinct palce in the treatment of spinal tuberculosis and that it can almost be classed as the acme of conservative treatment.

In fractures and fracture-dislocation of the vertebrae, Palmer[12] has tried, with success, the use of bone graft. He thinks that laminectomy should be done in all cases where there is deformity and paralysis, and that at the same time a bone gaft may be inserted that will obviate the necessity of wearing a jacket or brace.

In a case of recurrent spondylolisthesis, Ryerson[13] reports a fairly successful result. A young girl of fifteen, carrying a child in her arms, felt a sudden pain in her back and fell to the floor in a faint. Temporary paraplegia developed a week later, and subsequent weakness and numbness in the legs recurred during the next year. On examination it seemed that the fifth lumbar vertebra was capable of being displaced and it was decided to hold this in place with a bone graft. A second operation was necessary to secure firm fixation of the upper end of the graft. This bone splint from the third lumbar to the third sacral segment served to relieve the symptoms.

Galloway[14] reports the encouraging results of bone grafting in a case of paralytic scoliosis, but admits that it is too early to judge of its ultimate success.

The function of the periosteum in the regeneration of bone has been the field of much experimental study. According to the research of Moore and Corbett[15] it is to be disregarded in all bone operations. If convenient, it is to be preserved, because conservation of tissues should be the rule in good surgery, but one should not hesitate to sacrifice it, if necessary.

On the other hand, Haas[16] says that periosteum is directly and actively concerned in the regeneration of bone. This regeneration also takes place from the marrow, but at a later period and in a more limited degree than from the periosteum. He performed 57 experiments upon the ribs and costal cartilages of rabbits. His deductions as regards regeneration of bone are limited to the bones that arise fom cartilage.

Furthermore, as a result of their study, Davis and Hunnicutt[17] conclude that free periosteal transplants did not produce bone in the large majority of experiments, nor did pedunculated flaps of periosteum. On the other hand, free periosteal transplants and pedunculated periosteal flaps with bone attached produced bone in each experiment. The removal of the periosteum seemed to have little, if any, effect on the nutrition of a bone. After subperiosteal resection of a portion of a bone, the growth of the bone in repairing the defect was from the bone stumps, the periosteum acting as a limiting membrane.

In this confusion of ideas it may be remembered that to strip the periosteum entirely free from any of the cells of the cortex is a difficult task and the exactness of the experiments may be questioned. The conclusions of Phemister[18] in his studies on the fate of transplanted bone may be accepted as expressing as clearly as possible our present understanding of this question.

"Osteogenesis and bone repair occur through the inner layer of the periosteum and endosteum, and to much less extent, through the bone cells and fibrous contents of the Haversian canals." Viability of the transplant depends largely upon its ability to get nutrition which is suited to it, and this point he explains in detail according to the different demands of membrane and bone. According to Roux's law of functional adaptation, the bone transplant placed to fill a bone defect undergoes progressive changes, while in soft parts retrogression and disappearance take place. Axhausen's claim that osteogenesis does not take place through bone devoid of periosteum and endosteum is incorrect. The subsequent fracture of the piece of transplanted bone has been found healed by a well formed callus. When bone is transplanted in soft tissues there is no functional demand for the bone, and there is no more tendency for it to form than when periosteum is so transplanted. In any case, it is best to use the transplant with both the periosteum and endosteum intact.

Mayer and Wehner[19] after a careful experimental study, emphasize the osteogenetic function of the specific-osteoblastic cells of the periosteum and the inability of the adult bone cell to form new osseous growth. Bone macroscopically bare of periosteum can be successfully transplanted into the soft parts, not because the bone cells give rise to new bone formation, nor because of a metaplasia of the surrounding connective tissue cells into osteoblasts, but because of adherent periosteal cells and of living endosteal cells.

SCOLIOSIS.

The Second Report of the Scoliosis Commission,[20] appointed by the American Orthopaedic Association, is important. This Commission during its first year of existence, studied the results of the treatment of lateral curvature by various forms of plaster jackets, attempting to use the records of the different orthopaedic surgeons. These records in almost all cases they found to be unsatisfactory, and this second report records the results of six months' treatment of structural cases in four different clinics, all of the records having been taken in standard and identical fashion by the Commission themselves, both before and after the treatment. These clinics were those of Lovett, at the Children's Hospital, Boston; Abbott, at the Children's Hospital in Portland, Maine; Kleinberg, at the Ruptured and Crippled Hospital in New York, and Adams and Danforth at the Massachusetts General Hospital in Boston. They also memorialized all members of the Americal Orthopaedic Association and asked them whether they had themselves over-corrected any cases of structural scoliosis by any method. Six answered that they had, but none of them on further investigation were able or willing to offer evidence that such was the case, and since the completion of the report, the one definite and unqualified claim of cure in undoubtedly structural scoliosis referred to in the report of the questionnaire, has been retracted by letter to the Committee. We print certain of the findings of this Commission, which was an entirely impartial one. All its members were eager to discover a method by which this resistant deformity might be over-corrected, or even corrected, with a reasonable degree of safety and a fair degree of constancy.

The following summary is offered as the result of the investigation of the second series of cases:

1. No case of *over-correction* of the elements of deformity in structural scoliosis has been presented to the Committee, in which they have been permitted to observe and record the condition of the patient from a time preceding the beginning of treatment.

2. The time allowed by the Committee has been sufficient, in their judgment, for such a demonstration, were it possible in the respective patients and by the respective methods.

3. The same statements may be made with respect to complete correction of the elements of deformity.

4. The amount of correction demonstrated to the Committee by means of the method of Forbes is unsatisfactory and is to be regarded as an entirely insufficient reward for the amount of labor, discomfort and other inconvenience which is involved.

5. In mild cases of undoubtedly structural scoliosis, and perhaps in some moderately severe cases, considerable degrees of correction may be achieved by means of the method of Lovett, Abbott and by Kleinberg's brace.

6. It seems probable that greater degrees of correction may be obtained with the flexed position of the spine than with the extended position of the spine.

7. It does not appear that the use of extreme force is justified by the results which are to be obtained from it.

8. In order to have reciprocal application to the given case, all records should be made with the patient in the same position; this refers to the clinical, photographic and roentgenographic record and to the horizontal or upright position of the patient.

9. For purposes of record the upright position is to be preferred.

These findings should give us pause in employing excessively severe methods and at the same time should stimulate our endeavors to relieve this baffling condition.

FRACTURES.

Among the interesting cases that come to the orthopaedist for treatment of back strain are the often unrecognized fractures of the transverse processes of the vertebrae.

Among the 116 cases of back pain following injuries, Ewald[4] has observed four cases of isolated fracture of one or more transverse processes. In two cases a direct injury was reported, for the others a similar mechanism is supposed, since Ewald doubts the generally accepted mechanism by muscle pull. The typical symptoms were present in all cases: local tenderness, pain in bending over to the unaffected side and in rising to an erect position from the flexed position, in lifting of the legs from lying, and in going upstairs, lateral deviation being toward the good side. The diagnosis can be made by the x-ray only. Prognosis is favorable. Plaster strapping, or a wide webbing belt, is sufficient treatment.

In an article urging the use of plates in fractures, Raynaldo dos Santos[10] reports a case of separation of the anterior tuberosity of the tibia in a young man, by a sudden muscular contraction. The tuberosity was pushed down and the fragment held in place by the use of two plates. A perfect functional result was obtained.

(ED. NOTE: A great variety of plates and screws, made of various metals, ivory, live and dead bone, are used in fixing fractured fragments. The results seem to be equally good under these different methods and each operator has his special favorites to which he has become accustomed and with which through his skill in their use he obtains the best results. The auto-bone graft, when available, should give the best result.)

Associated with the odd fractures that are seen in orthopaedic practice are the traumatic disturbances of nutrition in the semilunar bone. After discussing our present knowledge of those peculiar affections of some carpal bones, as have been described by Preiser for the scaphoid and Kienboeck for the semilunar, Frenkel[24] reports two such cases of so-called "Kienboeck's disease of the semilunar bone, one case a housemaid of 25 years, and the other a carpenter of 30. In the history of the second case there was evidence of an injury, which was proved by the x-ray picture, four and one-half years after the accident. The original picture had shown a fissure of the radial epiphysis only. In both cases the clinical signs consisted in limited motion of the wrist, pain in motion, and tenderness over and near the semilunar bone. X-ray pictures showed an irregular structure, some parts being more, some less, dense than normal; also flattening and reduction in size. In one case a microscopical examination was done which showed a compression fracture secondary to a primary disturbance of the nutrition of that bone. There seems to be a certain similarity of these affections with those known as Koehler's disease of the tarsal scaphoid.

BACK STRAIN.

There have been published many articles on the subject of backache. Such a broad title includes nearly the whole scope of orthopaedics, from the foot to the top of the spine.

Beyond the pathological lesions that cause definitely localized pain in the back, there are other conditions that must be differentiated and more care given to their diagnosis. The importance of poor posture and the related visceroptosis is recognized. Attention is called to these facts by Ogilvy,[27] when he insists that the patient should be more carefully examined and a more definite diagnosis made. The importance of muscle strain due to bad balance of the body is emphasized. There is perhaps little new in what he writes, but the field is open for important study of the mechanical strains of the body structure.

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Reports of Societies.

AMERICAN ASSOCIATION OF IMMUNOLOGISTS.

STATED MEETING, HELD MAY 10, 1915.

(Continued from page 25)

The President, DR. GERALD B. WEBB, Colorado Springs, Colo., in the Chair.

The Second Annual Meeting of this Association was held at the New Willard Hotel, Washington, D. C. After the meeting of the Council the scientific program was taken up.

President's address:

PASTEUR.

DR. GERALD B. WEBB of Colorado Springs, Colo., made this address, in which he stated that in rereading Pasteur's life it had occurred to him that they as immunologists could not hear too often or too much of this, their greatest master. Pasteur's advice to the students of the University of Edinburgh was, "Worship great men." He agreed with the anonymous writer in the *Spectator*, "that he was the most perfect man who had ever entered the Kingdom of Science." He reviewed the early history of Pasteur, showing that he was fortunate in his parents, having a father that was reserved and of a slow and careful mind, and a mother, active, full of enthusiasm, and of imagination. He was equally fortunate in choosing a wife who was willing that the laboratory should be put before anything else. The speaker dwelt on Pasteur's work on fermentation, and his discoveries with reference to the disease of yeast and of the silk worm and of what these meant to the wine, beer, and silk industries of France. He reviewed the other discoveries of this great scientist which were familar to them all. In speaking of Pasteur's attitude during the Franco-Prussian War, he said that he was unable to concentrate on his work and wrote, "This war has sent my brains to grass." Later he wrote, "Might and right struggle for the world; right which constitutes and preserves society; might which overcomes nations and bleeds them to death." His writing on the psychology of war and his description of the horrors he witnessed formed a conterpart of similar crimes reported recently, and in choosing a discourse on this subject he wrote, "But we may assert that French science will have tried by obeying the law of humanity to extend the frontiers of life." In 1874 Tyndall, after thoroughly investigating Pasteur's experiments, wrote, "For the first time in the history of science we have the right to cherish the sure and certain hope that, as regards epidemic diseases, medicine will soon be delivered from quackery and placed on a real scientific basis. When that day arrives, humanity, in my opinion, will know how to recoginize that it is to you that will be due the largest share of her gratitude." After relating still further the discoveries of Pasteur, Dr. Webb stated that it is not generally known that the first experiments in "carriers" dated from Pasteur.

Pasteur was much more forceful than his biographers had indicated. He rarely visited a theatre or went out socially, feeling like the philosopher who said, "I am never bored but when I am being entertained." Pasteur read only what was good, and especially selected biographies. His advice to students should be emphasized: "All experimental research must be guided by some preconceived ideas. Exhaust every possible combination, until the mind can conceive no other possible. It is indeed a hard task when you believe you have found an important scientific fact, to constrain yourself for days, weeks, years sometimes, to fight with yourself, to try to win your own experiments, and only proclaim your discoveries after having exhausted all contrary hypotheses."

In closing, Dr. Webb advised his hearers to read the life of Pasteur by Vallery-Radot, a book which he described as reading like a fairy story, and one which should be memorized by all.

A CLINICAL STUDY OF THE COMPARATIVE RESULTS OF THE WASSERMANN REACTION.

DR. A. A. UHLE and DR. WILLIAM A. MACKINNEY presented this paper in which they stated that under no circumstances should a diagnosis of syphilis be based on the result of the Wassermann reaction alone. The serologist's report should be positive or negative, and if it was at variance with the clinical expectancy other specimens of blood should be submitted to one or more serologists for confirmation before such a result should be seriously considered. A negative Wassermann did not exclude syphilis, since such a reaction might be obtained in the early stages of chancre or might be the result of active treatment, or might exist in latent syphilis in which the foci of disease were not active to the extent that antibodies might be detected by the test. In latent syphilis a negative reaction at times became positive after active treatment. In certain cases of nervous syphilis the serum Wassermann reaction might be positive. After an intraspinal injection of salvarsanized serum, a formerly negative spinal fluid Wassermann test might become positive. Many competent observers had reported positive luetin tests with a negative serum Wassermann test. Certain factors, irrespective of the test itself, were considered responsible for discrepancies. These included the age of the serum, infected serum, non-sterile test tubes, the character of the glass of the test tube, changes in the blood as the result of faulty metabolism, influence of alcohol, etc. It could be readily understood why discrepancies should exist in reports from different laboratories; conflicting reports from the same serologist upon specimens from the same individual withdrawn at the same time under identical conditions were not easy to understand. After discussing the discrepancies in the Wassermann reports with several serologists, it was decided that a series of blood specimens from approximately 300 patients be submitted for the examination in order to ascertain to what extent the above mentioned factors influenced the Wassermann test. The first part of the work was done by four serologists and later three more coöperated. These men were all representative serologists connected with teaching institutions. The blood was collected from normal individuals, from patients in private and hospital practice who suffered from diseases other than syphilis, and from syphilitics in every stage of the disease. With a few exceptions all the syphiltic patients had been under their care for some time and several Wassermann tests had been reported on them before this study was undertaken. The blood was collected under the usual precautions and the specimens were so tabulated that those making the tests knew nothing of the specimens. These specimens were taken when the stomach was full and when empty. In one series two tests were made on each specimen, one of which was a non-infected serum, while the other was infected with virulent pathogenic organisms. In another series the serum Wassermann and the spinal fluid Wassermann were studied comparatively. In latent syphilis a classification was made of those who at the time of the taking of the blood showed no demonstrable lesion of the disease irrespective of its duration. The periods of latency were classified according to the duration of the disease. The authors exhibited fifteen tables showing the results of these tests by the different laboratories and a number of summaries explaining them, from which they concluded that it seemed to them that the extreme variations in the results of the Wassermann tests on blood serum, taken from the same individual under identical conditions as they were reported by several serologists, were not due to any of the factors which were frequently considered responsible for such discrepancies. The same variations occurred when the blood was collected in a sterile or non-sterile tube, when infected by certain pathogenic bacteria, or irrespective of the time elapsing between the collection of the blood and the time of the examination. In non-syphilitic cases a positive Wassermann report might be expected in from two to eighteen per cent. of the cases, in active primary, secondary and teritary manifestations of syphilis. With the exception of the first few days of a chancre, a positive Wassermann was present in from 50 to 100 per cent. of the cases. In syphilis under active treatment, or when the condition was latent, the result of the Wassermann reaction was of the utmost importance to the clinician and it was in these conditions that the most extreme variations were reported. In the study of these cases it became clear that the discrepancies in the Wassermann reports, made by the different serologists, were due to errors in technique, or lack of proper standardization of the reagents.

PSEUDO-POSITIVE WASSERMANN REACTION IN A CASE OF UREMIA AND INTESTINAL TOXEMIA.

DR. JUDSON DALAND of Philadelphia reported this case which occurred in a man, 55 years of age, a plumber by occupation, who was admitted to the hospital, on February 10, 1911. There were ascites, edema of the lower extremities, penis and scrotum, moderate dyspnea which became extreme upon assuming recumbency and after slight exertion, and slight cyanosis of the fingers and lips. There was nothing of importance in the family history or habits of the patient. His present illness began January 16, 1911, when he felt as though a nail had been driven through his left knee and a few minutes later a swelling in the feet and knees, rapidly involving the legs, which was rapidly followed by ascites. The physical examination showed extreme pallor, poor musculature, cyanosis, a few enlarged glands in the neck, axilla and groin. The pupils contracted equally and responded normally to stimuli. The teeth were absent. The apex beat of the heart was one half inch outside nipple and the impulse was heaving. The area of heart dullness was increased more especially to the left. The pulse was regular in force and rhythm, compressed with difficulty, and the radial arteries were sclerosed. The first sound was rough and accompanied by a blowing systolic murmur, transmitted to the left axilla. A similar murmur was heard over the aortic cartilage and was transmitted into the neck. The aortic sound was accentuated. The liver was slightly enlarged. The diagnosis was chronic interstitial nephritis and uremia in association with intestinal toxemia. The records of the blood pressure, blood examinations, urinary examinations were presented. The four Wassermann tests taken at intervals during the two weeks following his admission to the hospital showed one three-plus Wassermann, two positive reactions and one plus-minus reaction. This being the last of the four. The urine showed a moderate amount of albumen with hyaline and granular casts and a large amount of indican.

DR. JOHN A. KOLMER, Philadelphia, Penn: I feel

that the other side of the question as to the specificity of the Wassermann reaction needs some defense. I have long been interested in the question of the antigens, especially with the cholesterine extract. I have followed many patients through their clinical course of the disease and have made comparisons with the aid of several clinicians as to the Wassermann findings. I am of the opinion that this reaction is due primarily to some difference in the antigen. A proper understanding of the mechanism of the Wassermann reaction, and the proper use of the antigen, will modify our results more than anything else, more than any other factor. I do not believe the alcoholic extract of a syphilitic liver a specific antigen. Nor do I believe in the specificity of the aqueous extract of rabbits' livers. Two years ago I worked with a pure culture which was furnished me by Dr. Noguchi of New York. He believes that the specificity of the Wassermann reaction does not depend upon the antigen but upon the nature of the antibody. The antibody plays a big part, or constituent, of the Wassermann. It has been our purpose for three or four years to use three different extracts; one to be reinforced with cholesterine; another, the alcoholic extract of syphilitic livers as used in the United States and Germany; and another, the use of an acetone which was insoluble, the extract prepared after the method of Dr. Noguchi. We found the highest percentage of reactions was obtained when they followed the method of Dr. Uhle. The use of the alcoholic extract of syphilitic livers yielded the poorest results. I believe that the reports of the members differed in the results of the Wassermann reaction, coming from different laboratories, but not from any difference in the technique but because of differences in the antigen. A review of the literature regarding the specificity of the Wassermann reaction is entirely misleading. The reports regarding scarlet fever are also misleading. In my experience with 250 cases, only seven gave a reaction, and two of these had either a macular or papular rash of syphilis. From the standpoint of the laboratory man, we respect the specificity of the Wassermann reaction. I have found it on three occasions in the tubercular variety of leprosy and also in yaws. I believe that syphilis may be diagnosed in the laboratory. The statement, however, that the individual does not have syphilis does not exclude this disease; many of these patients had their symptoms clear up when under anti-syphilitic treatment, and this makes it presumably evident that the patient really suffered from a true case of lues.

DR. KENYOUN, Municipal Laboratory, Washington, D. C.: I agree with what has been said in regard to the specificity of the Wassermann reaction and the importance of reinforcing it with antigen. I believe that the discrepancies found in the laboratories are due to the fact that different antigens are used. There is one important thing that should be kept in mind—in the series of cases Dr. Uhle mentioned—at what time was the reaction made in the given blood? It is well understood that those who partook of alcohol in considerable quantities have the Wassermann reaction much modified. We have ascertained that in many cases where the reaction would be negative during the first twenty-four hours, if the reagent was kept for one week or ten days and at a proper given temperature, many of the sera would be given with positive results.

CAPT. VEDDER, U. S. A.: I am perfectly in accord with what Dr. Kolmer has stated and especially what he says regarding a proper diagnosis, which should not be made on a positive Wassermann reaction alone. We all know that lesions of syphilis can occur without any history of clinical signs being manifest. A prominent dermatologist from one of our largest cities came to me and I found a positive Wassermann reaction. He said to me, "I may have a positive Wassermann, but I have never had syphilis." He had a serious cardiac condition which was probably due to syphilis. He was positive that at no time had he been exposed to lues. I believe that there is a certain number of cases which can be diagnosed only by the Wassermann test.

With regard to the normal cases in which the reaction varied from 0 to 10%, I have just completed a survey among 1500 soldiers and I can report a positive Wassermann reaction in about 3%. Does obtaining a positive reaction mean syphilis, or does it not? There are, no doubt, many cases of syphilis that did not come to the physician; they had the disease but it could be detected only by the Wassermann.

(To be continued.)

Book Reviews.

The Medical Clinics of Chicago. Volume I, No. 2. (September, 1915.) Octavo of 194 pages, 44 illustrations. Philadelphia and London: W. B. Saunders Company. 1915. Published bi-monthly.

"The Medical Clinics of Chicago" are presumably patterned after the successful "Murphy Clinics." In the present number of essentially two hundred pages ten internists discuss a variety of clinical cases. The cases are interesting and on the whole well discussed. One loses the personal note that dominates "Murphy's Clinics." However, it is not yet apparent whether a considerable number of contributors will be an element of strength or weakness. Those practitioners who like their information always draped on the lay figure of the clinic patient will read "The Medical Clinics" with pleasure and some profit.

Encyclopedia Medica. Second edition, under the general editorship of J. W. BALLANTYNE, M.D., C.M., F.R.C.P.E. Vols. I and II. New York: The Macmillan Company. 1915.

The first volume of the second English edition of this standard medical encyclopedia was reviewed in the issue of the JOURNAL for September 9, 1915. This American edition does not differ obviously or importantly from its original except in binding and in the title page. The first volume extends from abattoirs to asphyxia and the second from aspiration pneumonia to chlorodyne. The remaining volumes may be expected in regular succession. This edition for the American market places an important English work of medical reference within easy access to the American profession.

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MASSACHUSETTS MEDICAL SOCIETY.

MALPRACTICE DEFENCE.

UNDER the terms of the Act for the Defence of Suits for Malpractice, adopted by the Massachusetts Medical Society, June 10, 1908, active Fellows of the Society may receive defence in the courts of the Commonwealth when they are accused of malpractice, without expense to them. The Society, in accord with the practice of twenty-two state medical societies having similar acts, pays the costs of defence but pays no damages, should any be awarded, the purpose of the act being to discourage suits and to fight unjust claims against members of the profession, but not to enter into commercial insurance. Every community has an increasing number of rapacious lawyers who are ready to threaten suit, or to bring suit, for the sake of a possible fee, to be obtained from the frightened doctor or from the insurance company in which he is insured, and the process of bringing suit, under our present laws, is all too easy of accomplishment.

Experience has shown that not all physicians are careful in keeping notes of their cases, and that in the event of claims for alleged damages from malpractice, the physician is sometimes placed in a false light by his inability to furnish to the Society's attorney the exact facts in a given case. Therefore, Fellows are urged to keep accurate records of the history, diagnosis and treatment of all their cases. In fracture cases the importance of having an x-ray plate made, if in any way practicable, is to be insisted on, as a matter of protection, if for no other reason. The possibility that a dissatisfied patient will have one made by the advice of another medical attendant at a later date, is always to be borne in mind, with the chance that the treatment given will be reviewed in court by the testimony of a roentgenologist, no matter how little the x-ray findings may have contributed to a proper diagnosis.

Finally, Fellows are advised to place their cases in the hands of the secretary early—upon the receipt of a lawyer's threatening letter—so that there may be sufficient time to prepare a defence. Too often the papers are not intrusted to the Society until the last minute, when time barely suffices for the president, secretary and attorney to give them suitable consideration before court proceedings are to begin. The chief advantage of early application for malpractice defence both to the Fellow and to the Society, at the same time accomplishing one of the purposes of the act, is that in a large majority of the cases the plaintiff attorney, when he learns that defence is likely to be assumed by the Massachusetts Medical Society, does not bring suit.

AN INTIMATE ACCOUNT OF A GREAT MEDICAL DISCOVERY.

THE December number of *The Scientific Monthly* contains an interesting article by Dr. Aristides Agramonte on the circumstances of the discovery of yellow fever infection. Dr. Agramonte was one of the members of the commission appointed by the United States Government to study the disease, the other members being Major Walter Reed, Dr. James Carroll, and Dr. Jesse W. Lazear, who contracted yellow fever in the course of his experiments and died. This commission met in Cuba for the first time

on June 25, 1900. Drs. Reed, Carroll and Lazear established themselves in the military barracks at Camp Columbia, and Dr. Agramonte was put in charge of the laboratory at Havana. They began work at once. An epidemic of yellow fever in Quemados, a small town near the barracks, and a later outbreak in Santa Clara furnished sufficient material. They were soon impressed with the fact of the apparent harmlessness of the clothing of the sick, the phenomenon of distant infection, and the possibility of the intervention of an insect host. The champion of this theory had been for a number of years Dr. Carlos J. Finlay, whose obituary appeared in the issue of the JOURNAL for September 16, 1915. As early as 1881, Dr. Finlay announced his theory that the bite of the mosquito was the mode of transmission of yellow fever; but he had been so unsuccessful in demonstrating his theory that, although he still stoutly maintained his opinion, he received little credence, and was even laughed at for his contentions. On the first day of August the board met and, after due deliberation, determined to investigate mosquitoes in connection with the spread of yellow fever, Dr. Lazear to have charge of the work. A visit was now made to Dr. Finlay, who, much elated at the news that the board was about to investigate his theory, very kindly explained many points regarding the life of the one variety of mosquito he thought most guilty, and furnished a number of eggs. Lazear hatched the eggs, and applied some of the mosquitoes to cases of yellow fever at Las Animas Hospital, Havana. After the mosquitoes had fed upon the yellow fever patients they were applied, at intervals of two or three days, to whoever would consent to run the risk of contracting the disease. Common opinion was so against this mode of transmission that numerous volunteers allowed themselves to be bitten. As time passed and none contracted yellow fever, the board became somewhat discouraged, and their faith in success very much shaken. In the afternoon of August 15, Dr. Carroll was examining with Dr. Lazear infected mosquitoes brought that day from the Las Animas Hospital. One mosquito, which had refused to feed, looked so weak and tired that Carroll allowed it to settle on his arm and feed, in order that it might not die. Two days later Dr. Carroll developed a severe case of yellow fever, from which he fortunately recovered in due time. Convinced that Dr. Carroll's fever was caused by the bite of the mosquito, Dr. Lazear and Dr. Agramonte decided to test it upon the first non-immune person who should offer himself to be bitten.

"Barely fifteen minutes may have elapsed since we had come to this decision when, as Lazear stood at the door of the laboratory trying to 'coax' a mosquito to pass from one test-tube to another, a soldier came walking by toward the hospital buildings. The man stopped upon coming abreast, curious no doubt to see the performance with the tubes, and after gazing for a minute or two at the insects he said, 'You still fooling with mosquitoes, Doctor?' 'Yes,' returned Lazear, 'will you take a bite?' 'Sure, I ain't scared of 'em,' responded the man. Lazear looked at me as though in consultation; I nodded assent, then turned to the soldier and asked him to come inside and bare his forearm. Upon a slip of paper I wrote his name while several mosquitoes took their fill. William H. Dean, American by birth, belonging to Troop B. Seventh Cavalry; he said that he had never been in the tropics before and had not left the military reservation for nearly two months. The conditions for a test case were quite ideal. Five days afterwards, when he came down with yellow fever, and the diagnosis of his case was corroborated by Dr. Roger P. Ames, U. S. Army, then on duty at the hospital, we sent a cablegram to Major Walter Reed, chairman of the board, who a month before had been called to Washington upon another duty, apprising him of the fact that the theory of the transmission of yellow fever by mosquitoes, which at first was doubted so much and the transcendental importance of which we could then barely appreciate, had indeed been confirmed."

The article then concludes with the story of the confirmatory work carried on by the board during the following autumn in an experimental camp provided for them by Brigadier-General Leonard Wood, the military governor of the Island, who thoroughly appreciated the importance of their work and ably assisted them. At this camp experiments to disprove the theory of infection from clothing were carried on. A building, in which all sorts of soiled bedding and linen used by yellow fever patients were placed, was occupied for twenty consecutive nights by Dr. Robert P. Cook, U. S. Army, and six others volunteered to subject themselves to the test. For further experiments with mosquitoes, John R. Kissinger, a private in the Hospital Corps of

the Army, and J. J. Moran, a civilian employee, offered their services. Both these men, in due time, suffered from yellow fever, and until very recently had never obtained any reward for the great risk which they ran so voluntarily and praiseworthily. The death of Dr. Lazear on September 25, who had been bitten by a free mosquito in one of his visits to the Las Animas Hospital, adds to this intimate and vivid account of the final discovery of the transmission of yellow fever the note of tragedy so often met in the history of momentous achievement.

ACIDOSIS AND INFLUENZA.

IN the issue of the JOURNAL for December 16, 1915, we published a brief editorial on the occurrence of two cases of acute epidemic acidosis in Belmont, Mass., and expressed the hope that further extension of the disease in the community might not occur. Unfortunately, during the succeeding weeks a considerable outbreak of the disease has taken place. The majority of the cases have occurred in Brighton, Brookline and Cambridge; and in the daily press several hundred alleged cases have been reported. As a matter of fact, however, many of these are probably not true acidosis. The total number of deaths thus far reported is fourteen, and of these all have been children with the exception of one young woman of twenty-four. In the deaths and in the undoubtedly genuine cases which have recovered, the symptoms and clinical picture have been the same as in the Concord (N. H.) epidemic referred to in our editorial, and originally described by Dr. Carleton R. Metcalf of that city.

Concurrently with this epidemic there has been in this community, and indeed throughout the United States, almost a pandemic of acute respiratory infection, taking the varied forms of common colds, tonsillitis, influenza, so-called grip and pneumonia. We commented editorially upon these infections in last week's issue of the JOURNAL. In Massachusetts the cases of these infections have been numbered by the thousands, and similar extensive outbreaks are reported simultaneously from New York, Chicago, San Francisco, Philadelphia, Cleveland, Detroit, New Orleans, Seattle, Los Angeles, Baltimore, Memphis, Tenn., Providence, R. I., and Savannah, Ga. In all cases the fatalities from the pneumonic and other severe forms of infection have been numerous and have raised local death rates far above the average figures. In Philadelphia, for instance, during the week ended December 30, there was a total of over 450 deaths from acute respiratory infections alone, and in Cleveland and Detroit, there are estimated to have been over 100,000 cases each. In Boston during the week ended January 3 there were seventy deaths from pneumonia, and in many surrounding towns the death rate from respiratory infections has been more than 50% higher than the average. Dr. Francis X. Mahoney, Boston Health Commissioner, has issued a statement to the public relative to these diseases, from which the following is a partial quotation:

"The tremendous increase in the number of deaths from these diseases at this time should serve as sufficient warning to people in this city, and that while, in itself, influenza did not contribute as large a total of deaths as did pneumonia and tuberculosis, it was the starting point of these fatal terminations.

"Influenza is highly communicable during the early stages of the disease, and this minute bacillus, discovered by Pfeiffer in 1892, spreads from person to person, and naturally where congestion is greatest.

"Contrary to the previous history of this disease, this time it has started in the Western and Southern parts of the country and moved Eastward. Some weeks ago it was reported in epidemic form in Jackson, Mississippi, and later in Milwaukee, Wis., coming East to Philadelphia, New York and Boston, leaving a great toll of deaths in its wake. Whether or not the two great gales recently had anything to do with the contrary direction in which this disease traveled, is open to investigation.

"The usual period between exposure and infection is from two to three days, although infection often takes place in a few hours. It may come in the form of a gastro-intestinal type, or the other type, which is the most common,—respiratory."

The concurrence of these epidemics of acidosis and of respiratory infections, raises the question whether possibly this acute form of acidosis may not be one of the types of manifestation in children of the same prevalent infection which in the majority of cases and in adults produces the respiratory symptoms of so-called influenza. The fact that in the present epidemic of influenza there is in adults a definite type of the disease in which gastro-intestinal symptoms predominate, lends plausibility to this theory. Dr.

Metcalf, however, to whom we owe the classic description of the Concord epidemic, believes that this is not the case, and that acute epidemic acidosis in children is a separate clinical entity with a definite, though unknown, infectious etiology and symptomatology. The subsequent study and comparison of data gathered in this present epidemic, may afford positive aid in the determination of this important question. At the present writing, fortunately, the acidosis epidemic appears to be at an end,* and the pandemic of respiratory infections seems to be losing its extent and virulence. A period of generalized immunity should succeed so widely prevalent a condition as the latter, but its sporadic recurrence may be expected during the winter months, and should be carefully watched for by practitioners in order that it may be promptly isolated and suppressed.

FREE WASSERMANN TESTS.

In an editorial on "The Control of Venereal Disease" published in the Boston Medical and Surgical Journal for August 28, 1913, the statement was made that "the first step in the assumption of a definite policy should be, in our opinion, the free examination of blood for the detection of infectious cases of syphilis and gonorrhea." Since the first of this year, the Bacteriological Laboratory of the Boston Health Department has been examining, without charge, blood specimens by the Wassermann test for syphilis. The requirements for having the test done are that the patient shall go to the Laboratory, Room 1101, City Hall Annex, on Monday, Tuesday, Wednesday or Thursday, from 2 to 4 p.m., when the blood will be taken, and that he shall present a history card carefully prepared by his physician. The benefits which may result from this new service seem to us more than the mere acquisition of information about any one patient. The recognition of the disease by the Health Department and the filing of reports of cases tend to place the disease upon the same footing as diphtheria or tuberculosis, and are first steps towards preparing the public for some kind of registration and oversight of infectious syphilitics.

Furthermore, the accumulation of data from large numbers of cases will in time give real information as to whether syphilis is really a curable disease, and as to the amount of treatment required to achieve this end.

Moreover, on the last page of this issue of the Journal, we publish a notice from the Massachusetts State Department of Health announcing its establishment also of a laboratory for the performance of free Wassermann tests for public institutions, local boards of health, and private physicians throughout the Commonwealth. These provisions, carrying out the suggestion and recommendation of the Journal, complete the equipment of communities in this state for dealing adequately with the diagnosis of this most important disease.

* On January 7, however, nearly 50 new cases were reported in Newton, Brighton, Allston and Watertown.

DOCTOR JAMES CLARKE WHITE.

The death of Dr. James Clarke White on January 6 takes from the Journal its senior past editor, and from the Boston profession one of its most distinguished elder members. Born at Belfast, Maine, on July 7, 1833, Dr. White graduated from Harvard College in 1853 and from the Harvard Medical School in 1856. After studying at Vienna under the leading European specialists in diseases of the skin, he returned to Boston, and was the first physician in this city to practice exclusively dermatology, in which he attained international reputation. He became an editor of the Journal in 1863, and served with ability and distinction in that capacity until 1866. For many years, then and thereafter, his writings adorned the columns of this publication, in which his latest contribution, the obituary of his contemporary and lifelong friend, Dr. Benjamin Joy Jeffries, appeared as recently as December 9, 1915. Dr. White's literary style was the appropriate expression of his courtly and discriminating personality, whose punctiliousness and refinement were surpassed only by the unfailing kindliness, courtesy, and integrity of his disposition, and by his professional learning and skill. Both he and the community are fortunate in the son and successor whom he leaves to continue his work and to maintain the medical traditions of his family.

MEDICAL NOTES.

Bequest to New York Academy of Medicine.—The will of the late Dr. Rudolph A. Witthaus bequeathes to the New York Academy of

Medicine almost his entire estate of over $150,000, also including his books, all to be used for the benefit of the library.

NEW PUBLICATION.—The publication of a new journal, the official organ of the American Association for Cancer Research, is announced. It is called the *Journal of Cancer Research*, and is to be issued quarterly. Dr. Richard Weil of Cornell University Medical School is editor, assisted by Joseph C. Bloodgood, of Johns Hopkins University, Leo Loeb of Washington University, Ernest E. Tyzzer of Harvard University, H. Gideon Wells of the University of Chicago, and William H. Woglom of Columbia University.

LONDON DEATH RATES IN NOVEMBER, 1915.—Statistics recently published show that the total death rate of London in November, 1915, was 16.2 per thousand inhabitants living. Among the several districts and boroughs, the highest rate was 22.1 in Finsbury, a populous central region, and the lowest was 11 in Hampstead, an open suburb on the north.

PREVALENCE OF MENINGITIS, POLIOMYELITIS, SMALLPOX AND TYPHOID FEVER.—The weekly report of the United States Public Health Service for December 24, 1915, states that during the month of November, 1915, there were in Ohio 21 cases of cerebrospinal meningitis, 40 of poliomyelitis, 216 of smallpox and 394 of typhoid fever. During the same period there were 16 cases of poliomyelitis each in Massachusetts and Minnesota. There were 125 cases of smallpox in Minnesota; and of typhoid there were 315 cases in Maryland, 255 in Massachusetts, 116 in Michigan, 109 in Minnesota, and 144 in New Jersey.

TYPHUS IN MEXICO.—A report from Juan T. Burns, Mexican consul at Galveston, Texas, states that during the first two weeks in November there were 315 deaths from typhus in Mexico City, and that during the first two weeks of December there were approximately 1500 new cases reported. During the month of December there was a total of 3241 cases of the disease, with 305 deaths, as compared with 404 deaths in November. Report from Washington, D. C., on Jan. 6, states that on that date there were 2500 cases in Mexico City and its suburbs. Every physician connected with the Government has been directed to place his services at the disposal of the Board of Health in an effort to control the disease.

BILL TO AID THE TUBERCULOUS.—It is reported that a bill is to be introduced in Congress which provides for the standardization of the treatment of tuberculosis and the assistance of indigent tuberculous persons. Such persons are to be cared for in designated hospitals and receive Federal aid where necessary.

NEW YORK DEATH RATE IN 1915.—During the year just closed there were 76,193 deaths reported in the city of New York, giving a death rate of 13.61 per thousand population, which is .03 lower than the rate for 1914. Influenza and the acute respiratory diseases showed an immense increase over 1914, and were responsible for the city not having a lower rate than 13.61 for the year. Twelve thousand people died in the city from influenza and pneumonia during the past year, an increase of almost 1500 over 1914. Estimating the mortality of these diseases as 20 per hundred, there were 60,000 cases of these diseases in the city during the last year. The contagious diseases showed a decrease of 186, despite the prevalence of measles during the early part of the year. The degenerative diseases showed but a slight increase, to wit: 106 deaths. The deaths from cancer were 186 more than during the previous year. This gradual increase in the mortality of cancer has been going on for the past 15 or more years. There was an actual decrease of 94 in the number of deaths reported from tuberculosis. There were 13,872 deaths among infants under one year of age, an increase of 560 over last year. The infant death rate was 99, as compared with 95 last year. This increase in the mortality of children under one year of age was due principally to three causes: Gastro-enteritis, measles and pneumonia. 141,356 births were reported during the year, giving a rate of 25.56 as compared with 140,642 births and a rate of 25.65 for 1914. The marriage rate was lower during the past year than during 1914, the respective rates being 9.11 and 9.67. The number of marriages reported was 50,998 and 53,052. To the financial depression and the loss of immigrants caused by the war, are to be attributed this decrease in the marriage and birth rates.

PUBLIC HEALTH REPORT OF THE SECRETARY OF THE TREASURY.—The annual report of the Secretary of the Treasury as it relates to the Public Health Service, contains numerous recommendations bearing on the functions of that organization and evidences the great interest of this department in the extension and expansion of the governmental agencies for the protection of the public health.

In the development of general public health work, according to the Secretary, there is great need of additional medical officers. The number of requests for advice and assistance in health problems received from states and municipalities during the past year has far exceeded that in any similar period in the history of the Service, but the limited number of officers available for the work has prevented in many instances compliance with these requests.

The field investigations, the Secretary states, have served as a stimulus to state and local health agencies, and every effort should, therefore, be made to encourage and turn to practical

account the interest in health matters awakened in the general public. For this reason, an increase in the appropriation for field work is requested.

An additional building for the Hygienic Laboratory is urgently needed. The work of this institution has been greatly extended, particularly as it relates to the examination of viruses, sera and analogous products, a vast market for which has been recently created abroad. The safeguarding of these therapeutic agents requires great accuracy and precision, and overcrowding is a serious handicap. In order that the public health may be better protected, an annual appropriation of $25,000 is recommended to be expended in carrying out the provisions of the law relating to the examination of these products.

The United States is the only government of importance which does not provide for the care and isolation of lepers. The establishment of a national leprosarium where the numerous lepers, most of whom are native-born Americans, may be properly segregated and treated, thereby eliminating a menace to the health of others, is urged.

The further recommendations of the Secretary relate to the need of additional clerical assistance in order to meet the demands which are increasingly made on the Public Health Bureau.

IMPROVING CANCER STATISTICS IN THE UNITED STATES.—At the suggestion of a number of the foremost American students of the cancer problem, the United States Bureau of the Census has instituted radical improvements in the collection and publication of the statistics of this disease. A special monograph on deaths from cancer in the United States during the year 1914 is in preparation and will be issued shortly after the first of the year.

This monograph will consist of tables showing the deaths from cancer, according to the site of the disease, age, sex, color, nativity and marital condition, for the registration area, the several registration states and the usual subdivisions. Figures for white and colored will be shown separately for such counties and towns as have a colored population of 10,000 or at least 10 per cent. of the total. The new plan subdivides the seven titles for cancer in the International List of the Causes of Death into twenty-nine headings referring to the exact site of the disease. For instance, all deaths from "cancer and other malignant tumors of the buccal cavity" will now be reported under the separate subdivisions for cancer of the lip, tongue, mouth and jaw, and similarly with the other groups.

Upon the further suggestion of a prominent surgeon, the Census Bureau also plans to increase the accuracy of the statistics by tabulating separately the returns in which the diagnosis was "reasonably certain" and those in which it was "uncertain". In arriving at this distinction a report is classed as "certain" if the diagnosis was confirmed by microscopical examination of tissues, or by surgical operation, or by autopsy. All cases of internal cancer in which the diagnosis was based on clinical observation alone are classified as "uncertain" regardless of any strength of assertion by the physician that the diagnosis was correct.

STANDARDIZATION OF DENTAL SCHOOLS.—Report from Milwaukee on December 27 announces a plan for the classification and standardization of the dental schools in the United States after the same method as that applied by the American Medical Association to the rating of medical schools. This is to be done by the Dental Educational Council of America whose next annual meeting is to be held at Louisville, Ky., in July, 1916. The announcement is made by a committee which during the year has been inspecting dental schools throughout the country which number a total of fifty-two.

"During the last two months colleges in the West and Middle West have been inspected by the committee. At the last meeting of the council a report was submitted on the standing of the colleges of the South. The inspection of the Eastern colleges will begin April 1, in order to have the complete report ready for the annual meeting. At that meeting also a curriculum for the four-year course in dentistry, which will be adopted in all colleges in 1917, will be submitted to the council.

"Already many schools of dentistry are preparing to meet the requirements of the new classification and the demands of the four-year course. In several cities where there were two or more poorer colleges these schools have been combined to make one first-class institution. New equipment is being installed. Although Marquette Dental School has been rated 'A' for the last ten years by the New York State Department of Education, which was the previous authority on the question, officials of the school have already prepared for the four-year course.

"The Dental Educational Council is composed of five members from the National Association of Dental Faculties, five from the National Association of Dental College Examiners, and five from the National Dental Association."

INCREASE IN COST OF DRUGS.—The rising cost of drugs, which we have noted at intervals since the outbreak of the war, has continued to the very close of the old year and the opening of 1916. Report from New York on December 31 describes as follows the present status of the domestic market for drugs and chemicals:

"The domestic drug and chemical markets passed through the most critical period in their history during the twelve-month just closing. Narrowing supplies of practically all fine medicinal drug and chemical preparations, as well as all technical chemicals, coupled with the

most rampant speculative operations ever seen in this country, brought about an unprecedented upheaval of prices and values which were anywhere from 100 to 5000 fold inflated, bid fair to go still higher as the year closes. The violence of fluctuations seen here towards the close of the year had not only extended to practically all products of European origin, but owing to the fact that ocean transportation rates from such Far East points as India, Ceylon and China had over-topped the high level established last spring, and to the fact that sources of drug supply in Asia Minor, Turkey, Egypt and Japan had not proved as prolific as during normal years, advances had extended to all products obtained from the Near and Far East.

"Additional announcements of contraband of war lists by Great Britain, France, Italy, Germany, Russia and other countries, and the complete embargoes placed by these countries, as well as by their dependencies on a large number of medicinal drugs, as well as upon numerous commodities used in the manufacture of explosives and in munitions for war, brought about a heavy buying movement on the part of domestic handlers."

The table accompanying this statement presents a comparative survey of relative prices of the principal drugs at the beginning and close of the year 1915. During this period, for instance, opium has risen from $9 to $11 per pound, quinine from 31 cents to $2.50 per ounce, antipyrine from $2.80 to $32 per pound, balsam of Peru from $1.70 to $5.75 per pound, sodium benzoate from 50 cents to $4 per pound, potassium bromide from 72 cents to $5.50 per pound, sodium bromide from 56 cents to $4 per pound, caffeine from $4.50 to $12 per pound, Epsom salts from $1.75 to $4 per hundred weight, potassium chloride from $75 to $600 per ton, potassium permanganate from 15 cents to $1.75, resorcin from $1 to $10.50 per pound, saccharine from $3 to $15 per pound, the salicylates from 75 cents to $4 per pound, thymol from $7 to $14 per pound and toluol from 45 cents to $5 per gallon.

AGE OF TUBERCULOUS INFECTION.—In the issue of the *New York Medical Record* for January 8, is an article by Dr. S. Adolphus Knopf of New York on the relation of age to tuberculous infection, representing an address delivered by him last September before the joint meeting of the American Public Health Association and the annual conference of health officers of the state of New York, at Albany. It is based on responses to sixty letters of inquiry addressed to well-known internists, specialists in tuberculosis and pediatrics. Among the more important conclusions reached by the author from his study of these statistics of the literature and from his own experience may be quoted the following:

	Highest Percentage	Lowest Percentage
Under 1 year.....	1	9
From 1st to 3d year.....	9	50
From 3d to 5th year....	27	75
From 6th to 10th year..	34	75
From 11th to 15th year (private)	12	(Hosp. cases) 94

Tuberculous disease in childhood, compared with tuberculous infection, is relatively rare (36%). On the other hand, tuberculous infection is exceedingly frequent, generally speaking. According to exact statistics, as well as general impressions given by men of large experience, the majority of cases of tuberculosis in the adult had their origin in an infection during infancy or childhood.

The frequency of infection increases with the age of the child, and, of course, is also affected by the environments the child comes from.

As to what organs are primarily most frequently involved, statistics and impressions both give lungs and lymph nodules. Prenatal infection, while considered rare, is perhaps much more frequent than statistics show. The age at which a tuberculous infection, contracted in infancy or childhood, becomes active is most frequently at or shortly after 15 years, next between 18 and 30 years. The ages at which tuberculosis was diagnosed and apparently contracted most frequently in later life were given as between 20 and 35 years. Nearly all the authorities consulted unite in the opinion that in order to combat tuberculosis successfully in the young and old alike, we must diminish the sources of infection in childhood.

INSTITUTE FOR TUBERCULOSIS WORKERS.—Attention is called to the Institute for Tuberculosis Workers, which is to be conducted in New York in June of this year by Mr. Philip P. Jacobs, assistant secretary of the National Association for the Study and Prevention of Tuberculosis. It is the first organization of its kind in the United States, and will comprise a three weeks' conference and study of the social aspects of the tuberculosis problem. It will be held under the auspices of the New York School of Philanthropy, 105 East 22nd Street, New York City, from June 1 to 21. The three principal purposes of the Institute are as follows:—

(1) To train workers to become secretaries or to assume other executive positions in the anti-tuberculosis field.

(2) To give to all who attend a broad outlook on the tuberculosis field in its national, state, and local aspects.

(3) To aid in the standardization of methods of anti-tuberculosis work.

The following is a suggested outline of the course, which will, however, be subject to subsequent modifications:

I. Methods of Anti-Tuberculosis Work:
   (*a*) Educational:

(1) Exhibits
(2) Publicity
(3) Literature
(4) Work with Children
(*b*) Organization
(*c*) Dispensaries
(*d*) Open-air schools
(*e*) Industrial Work for Employees
(*f*) Nursing
(*g*) Institutional Work
(*h*) Coöperation with City Officials
(*i*) Conduct of Conferences and Meetings

II. Programs of Anti-Tuberculosis Work:
(*a*) For a Large City
(*b*) For a State
(*c*) For Counties and Small Cities and Towns

III. Relations of the Tuberculosis Campaign to other Social and Public Health Movements

The methods of work will be chiefly by round table conference, with discussion prepared and directed by the conductor, who will have the cooperation of prominent tuberculosis workers in New York and its vicinity. The mornings will be devoted to the conferences and the afternoons to visits in various institutions and offices. The only charge for the course is a registration fee of $10.00. Applications for membership should be addressed to Mr. Jacobs at 105 East 22nd Street, New York City.

EUROPEAN WAR NOTES.

AMERICAN HOSPITAL UNIT IN GERMANY.—The arrival in Berlin of the hospital unit sent out by the American Physicians' Expedition Committee, which left this country for service in Germany, has been reported. The unit was headed by Dr. Fred Kammerer, president of the New York Surgeon's Society, and included three surgeons,—Drs. Frank D. Gorham, P. Sauer and Frank Paschal, with six nurses. The unit will take charge of the military reserve lazaret at Deutsch Eylau, East Prussia.

RETURN OF DR. RICHARD L. JETTS.—Dr. Richard L. Jetts, of Cleveland, Ohio, a member of the British Red Cross, has succeeded in escaping from Serbia, where he was engaged in hospital work, and has returned to this country. Dr. Jetts has served in various parts of Serbia and was at a hospital in Pirot when the Bulgarians and Teutons poured across the Serbian border. As the Serbians retreated, the ambulance corps gathered as many of the wounded as possible together and proceeded to retreat ahead of the army. Many of the wounded could not be moved, because of lack of facilities, and had to be left behind. In the process of moving, everybody was forced to leave behind him everything except the clothes he wore. Dr. Jetts, therefore, made his arrival with no possessions but a sword. The refugees, pursued by the Germans and Bulgarians, fled south and crossed the Grecian border into Monastir. From here they were able to get to Italy, whence Dr. Jetts sailed home. The ship also contained as passengers Dr. Frank E. Letts of London, Ont., Dr. A. H. Miles of Lancaster, Mass., and Dr. D. M. Sherbrook of Ware, Mass., who had gone to Serbia to aid in fighting the typhus. They had been obliged to walk to Monastir to make their escape from the country.

CHOLERA, SMALLPOX AND TYPHUS IN AUSTRIA-HUNGARY.—The weekly report of the United States Public Health Service for December 24, 1915, states that during the month of October there were in Austria-Hungary 1284 cases of Asiatic cholera with 862 deaths, of which the majority were among the civil population. During the six weeks ended October 16, 1915, there were 2923 cases of smallpox in Austria, and during the fortnight ended October 2 there were 204 cases of typhus fever.

EXPEDITION OF DR. ANDERSON.—It is announced that Dr. John F. Anderson, formerly director of the Hygienic Laboratory of the United States Public Health Service, has sailed for England and France to study there the methods employed in the armies for the prevention of wound infections. He will visit various hospitals to observe the various methods employed both in the prevention and in the treatment of serious wound sepsis.

TYPHUS FEVER IN SIBERIA.—Report from Berlin on December 30 states that typhus fever is extensively epidemic in the military prisons and detention camps of Russia. In Novo-Nikolaiev alone it is said 7000 prisoners have recently died of this disease, whose presence is attributable to deficiency of sanitation.

EXTENT OF FRENCH MILITARY HOSPITALS.—Report from Paris on December 30 states that the military and auxiliary hospitals of France now contain a total of 500,000 beds, the majority of which are occupied by wounded soldiers. The cost of their maintenance is $250,000 daily. Already the three Red Cross Societies operating in France have spent $16,000,000 for the 115,000 beds which they maintain in 1200 hospitals. Of this amount, over $1,250,000 have been contributed from American sources.

WAR RELIEF FUNDS.—On January 8, the totals of the principal New England relief funds for the European War reached the following amounts:

Belgian Fund	$81,274.14
Serbian Fund	60,849.19
Allied Fund	49,152.80
French Fund	35,383.21
Armenian Fund	27,904.45
Surgical Dressings Fund	15,641.99
La Fayette Fund	15,641.99
Polish Fund	14,565.43
Italian Fund	14,330.02

BOSTON AND NEW ENGLAND.

THE WEEK'S DEATH RATE IN BOSTON.—During the week ending January 8 there were 316 deaths reported, with a rate of 21.67 per 1,000 population as compared with 252 and a rate of 17.56 for the corresponding week last year.

There were nine deaths from influenza, and 80 deaths from pneumonia against 36 last year.

There were 44 deaths under one year as compared with 29 last year, and 119 deaths over 60 years of age against 92 last year.

During the week the number of cases of principal reportable diseases were: Diphtheria, 51; scarlet fever, 53; measles, 59; whooping cough, 63; typhoid fever, 1; tuberculosis, 36.

Included in the above were the following cases of non-residents: Diphtheria, 15; scarlet fever, 13; measles, 1; whooping cough, 2; typhoid fever, 1; tuberculosis, 5.

Total deaths from these diseases were: Diphtheria, 8; scarlet fever, 1; measles, 1; whooping cough 3; typhoid fever, 3; tuberculosis, 18.

The non-residents included in these deaths were: Diphtheria, 4; scarlet fever, 1, measles, 1; whooping cough, 1; typhoid fever, 3; tuberculosis, 1.

NEEDS OF CHILDREN'S HOSPITAL.—Since the removal of the Children's Hospital to its new buildings on Longwood Avenue, it has incurred a large financial deficit, due partly to the increased number of patients for which it has cared, and partly to the increased cost of maintenance in its new quarters. This increase has amounted to more than $50,000 in its annual expenditures. There is, therefore, need of an immediate fund to be raised by generous public charitable contributions to meet this deficit. The following appeal to the public for this purpose, signed by four members of the staff, has recently been published in the daily press:

"In April, 1914, the Children's Hospital moved from the Huntington Avenue building to the new group of buildings on Longwood Avenue. It moved from a building which had been long ago outgrown, and which by its very unfitness had restricted the work the hospital should have been doing. With the move to the adequate quarters of the new hospital there began an expansion of work, an expansion merely waiting to take place, but prevented by the surroundings and limitations of the Huntington Avenue building. The number of ward beds increased from about 75 to 120 at once on moving, necessitating, of course, more nursing, more heat, more food and more service in all directions.

"In the first nine months of 1913 there were admitted to the wards 1496 patients. In the corresponding nine months of 1915 there were admitted 2542, being an increase of 70%. In addition to this there has been a great increase in the patients coming to the Out-patient Department. In the first nine months of 1913 there were 23,050 out-patient visits. In the corresponding nine months of 1915 there were 35,129, an increase of 12,000, or 52%. This increase means that in each of these nine months there were 1300 more children coming to the hospital for treatment than came in the old building. In October, 1915, there were made 4000 out-patient visits, as against 2380 in 1913.

"The social service department in the first nine months of 1915 showed an increase of 110% in new patients over the corresponding months of 1913, and visits at the homes of the patients in this department in 1915 showed an increase of 30% over home visits in the same period in 1913. Not only in the number of patients cared for has the expense been greatly increased, but also by the higher standard of work naturally resulting from new conditions, adequate quarters, and contiguity and association with the Harvard Medical School. More laboratory examinations are available and a better study and better care of patients thereby secured.

"Those of us who had personally known the conditions in the old hospital had expected that under proper conditions a large expansion would occur, but none of us had anticipated so great and so sudden an expansion of work. This greatly increased demand on the hospital has naturally been most expensive, and has come at a time when it is not easy to raise money for home enterprises; but the Children's Hospital deserves support from the community in which it is situated. Its resources are small, it receives no city or state aid of any kind, it is committed by its clientele to an expenditure beyond its present income, its money is honestly and economically spent in the interest of the community, and it confidently looks to that community for financial assistance, without which its present work cannot be carried on.

"HAROLD C. ERNST, M.D.,
"ROBERT W. LOVETT, M.D.,
"JOHN LOVETT MORSE, M.D.,
"JAMES S. STONE, M.D."

Subscriptions should be sent to Mr. Gordon Abbott, Treasurer, Old Colony Trust Company, 17 Court Street, Boston.

In response to the above appeal, about $800 have already been received in contributions. The inadequacy of this amount has led Mr. Abbott to issue the following second appeal, to which it is hoped there will be an immediate and generous response:

"The Children's Hospital, facing a large deficit, earnestly appeals to you to help meet its running expenses, which have increased by over $50,000 per annum since the opening of the new hospital.

"This increase in cost is entirely due and in proportion to the larger number of children cared for.

"The demands upon us have increased beyond all expectation. How they have been met is shown in the enclosed report from members of the staff.

"The existing high standard of efficiency should not be, and will not be, lowered; therefore the only way to decrease expenses is to shut our doors to the ill child, or refuse counsel to the frightened mother.

"We receive no help from the government of either state or city; our endowment (derived entirely from gift or bequest) is too small for our present needs, and we depend each year to a great extent upon the generosity of the community, so that every contribution, either large or small, is of vital use."

WORK OF THE ANDROSCOGGIN.—On December 22, the hospital patrol ship *Androscoggin* returned to Boston from her second cruise of the season along the fishing banks, bringing from Shelburne, N. S., one fisherman ill with typhoid fever and another with cardiac disease. Since sailing from this port on December 2 the hospital ship has treated 21 sick or injured fishermen. The custom is being established of making headquarters of the *Androscoggin* off Shelburne whither patients may be brought from all parts of the maritime region. The two patients brought to Boston were sent to the United States Marine Hospital at Chelsea.

FOOT AND MOUTH DISEASE.—Report from Worcester, Mass., on December 22, states that there is a fresh outbreak of foot and mouth disease among 250 hogs on a farm in that city. A strict quarantine of the region has been established by the State Department of Animal Industry.

CHOICE OF SPECIALTIES AT HARVARD MEDICAL SCHOOL.—In connection with the book recently published by the Alumni Association of the Harvard Medical School, giving the experience of recent graduates of the School, it is interesting to note the following statistics recently made up from the senior class of the Harvard Medical School. In its freshman year the class was asked to state the branch of medicine each member intended to choose as a profession. In its senior year the class was again asked to state its preference of specialty. The results are as follows:

	First Year Choice	Fourth Year Choice	Unchanged	Changed
Surgery	17	16	11	6
Internal medicine	5	10	4	1
General practice	10	10	6	4
Pediatrics	5	9	4	1
Gynecology and obstetrics	4	6	2	2
Public health	1	3	1	0
Eye and ear	2	2	2	0
Orthopedics	4	1	1	3
Neurology	7	1	0	7
Genito-Urinary	0	1	0	0
Nose and throat	1	1	1	0
Physiology	0	1	0	0
Pathology and bacteriology	2	0	0	2
X-ray	1	0	0	1
Uncertain	11	5	1	

HEALTH WEEK IN BOSTON.—The week of January 9 to 15 has been appointed Health Week in Boston. The movement is participated in not only by local societies, but state and national organizations. Lectures and exhibitions consisting of models, charts and moving pictures, are held at the Boston Y. M. C. A. building, which has been turned over to the committee in charge of this campaign for education of the public in matters of health. The lectures are free and all are invited. Some of the organizations participating in the movement are the Associated Charities, Milk and Baby Hygiene Association, Boston Association for the Relief and Control of Tuberculosis, City and State Departments of Health, the United States Government, Instructive District Nursing Association, Massachusetts Medical Society, Psychopathic Hospital, Boston Dispensary, Life Extension Institute of New York, Scientific Temperance Federation, Women's Municipal League, Massachusetts Consumers' League, Massachusetts Child Labor Committee, Massachusetts Society for Mental Hygiene and the Maverick Dispensary.

On Sunday Dr. Hugh Cabot made an address on "Individual Responsibility for Community Health." On Monday the Boston Association for the Relief and Control of Tuberculosis held a meeting on "Tuberculosis, Its Prevention and Cure." There was also an address on "The Functions and Service of the City Department of Health," and a symposium on the child by four experts in the health and care of children. On Tuesday there was a presentation of the work of the State Department of Health, a debate on sickness insurance, and a symposium on health problems and the immigrant. On Wednesday an address was given on the diseases of the eye and ear, and on the care of the teeth. On Thursday there will be a presentation by the Scientific Temperance Society and addresses by Dr. Richard Cabot and Professor Selskar Gunn on "Health Problems and the Social Worker." On Friday E. E. Rittenhouse, President of the Life Extension Institute, will speak on that organization and there will be an address on "Dispensaries and Nursing for the Poor and Not Poor." Moving pictures of "Better Boston" will close the exercises on Saturday.

GRADUATION OF NURSES AT NEW ENGLAND BAPTIST HOSPITAL.—The graduation of nurses of the New England Baptist Hospital will take place in Ford Hall, January 19, at 8 p.m. Dr. Charles A. Porter will speak on "Experiences with the Harvard Unit in France." Diplomas will be awarded to ten graduates.

BOSTON DISPENSARY.—The Boston Dispensary announces that the past year has been its most successful year since its establishment. It treated an average of 404 patients daily, or 122,333 during the year. Of this number 37% were men, 30% were women and 33% children. The

per cent. of men treated is much larger than formerly, due, it is believed, to the depression of industrial conditions in the early part of the year.

MASSACHUSETTS GENERAL HOSPITAL TRAINING SCHOOL.—Invitations are issued by the trustees of the Massachusetts General Hospital for the graduating exercises of the Training School for Nurses, on Thursday evening of this week, January 13. The principal address on this occasion will be delivered by Dr. George Cheever Shattuck on "Serbia; Its Hospitals and Nursing Conditions."

MEDICAL BEQUESTS.—The will of the late Mrs. Moses G. Howe, of Cambridge, Mass., who died in that city on Jan. 3, was filed on Jan. 16 in the Middlesex registry of probate. It bequeathes her house and land for the joint use of the Cambridge Hospital and Home for Aged People, and contains a legacy of $3000 to the trustees of Boston University for the foundation of a scholarship in its school of medicine.

SUMMARY OF BOSTON VITAL STATISTICS FOR 1915.—Deaths reported before January 7, 1916, for 1915, were 12,018.

Deaths of non-residents numbered 1,610 against 1,544 in 1914, and known deaths of Bostonians outside of the city numbered 704 against 768 in 1914. Corrected for these two factors, the 1915 death rate per 1,000 population is 14.85 against 15.01 in 1914.

A few provisional figures for 1915 are given below:

CASES, DEATHS AND DEATH RATES PER 100,000 OF POPULATION.

	Cases.	Deaths.	Death Rate.	1914 Death Rate.	Lowest Rates. Year.	Lowest Rates. Rate.
Typhoid fever	388	40	5.3	9.0	1912	8.0
Diphtheria	2942	218	29.1	22.9	1912	14.3
Scarlet fever	2959	79	10.6	8.8	1912	4.5
Measles	5175	40	5.3	8.4	1879	.6
Pulmonary Whooping cough	2190	111	14.8	6.2	1905	4.9
Pulmonary tuberculosis	2820	1031	137.8	141.9	1914	141.9

The above table shows in 1915 new record low death rates for both typhoid fever and pulmonary tuberculosis. Attention should be called to the fact that included in the above totals were the following deaths of non-residents:—

Typhoid fever	9
Diphtheria	54
Scarlet fever	26
Measles	4
Whooping cough	2
Pulmonary tuberculosis	82

From typhoid fever nine non-residents died in Boston and four Bostonians died outside. And from pulmonary tuberculosis 82 non-residents died in Boston and 191 Bostonians died outside, so that corrected 1915 death rates per 100,000 population for these two diseases are respectively 4.7 and 152.3.

Deaths under one year numbered 2,032 against 2,007 last year.

Births in Boston reported before January 7 numbered about 19,600, while the final total for 1914 was 19,463. Mr. McGlenen, City Registrar, estimates that about 100 more will be reported for the year. The infant mortality rate in that case will be 103, or equal to the record rate of 1914.

OTHER COMPARISONS FOR 1914 AND 1915.

Causes.	Total Deaths. 1915.	Total Deaths. 1914.	Non-Residents. 1915.	Non-Residents. 1914.
Total deaths from all causes	12,018	11,831	1610	1544
Anterior poliomyelitis	4	7		2
Cerebrospinal meningitis	30	39	7	3
Glanders	3	3		
Malignant pustule	2		1	
Tetanus	7	10	4	7
Other tubercular	187	219	34	52
Accidental and violent	818	833	143	161
Bright's disease and nephritis	837	822	64	69
Bronchitis	127	117	6	2
Cancer	853	879	149	166
Diarrhea and enteritis under two	451	480	69	119
Diarrhea and enteritis over two	76	69	18	11
Dysentery	12	26	2	6
Erysipelas	48	50	5	4
Heart disease	1608	1882	131	155
Meningitis and encephalitis	66	51	11	5
Old age	25	23	2	
Pneumonia	1460	1385	114	107
Premature birth	355	422	51	55
Puerperal diseases	156	127	40	19
Rheumatism	32	36		2
Total deaths under 1 year	2032	2007	318	328
Total deaths under 5 years	2959	2774		
Males	6296	6260	888	863
Females	5721	5571	721	681
Hospitals and institutions	5478	5140	1432	1322
Over 60 years of age	3632	3438		
Colored	364	370		

Correspondence.

THE HOSPITAL AND THE GENERAL PRACTITIONER.

DEC. 25, 1915.

Mr. Editor: Regarding Dr. Cabot's letter in this week's JOURNAL, it seems to me that Dr. Cabot should have written to the daily papers a denial of the statements which he was reported to have made at the Evans Memorial. This would have been an easy matter, as Dr. Cabot has a most free entry into the columns of the daily press, and this would in a measure have partly offset the considerable harm to the profession and the public which resulted from the publication of Dr. Cabot's alleged address.

Unfortunately, it has been the practice of Dr. Cabot, in his addresses to the laity, to disparage the work of the general practitioner. He has made the statement that sick persons who are treated free at the hospitals and dispensaries receive better care than those who patronize a local physician. Such a statement is at absolute variance with the truth, and every physician who has gone through the clinics at the different hospitals and dispensaries in Boston knows the statement to be at variance with the truth.

The people, however, do not know, and a great many of them look to Dr. Cabot for advice, through the press, on medical matters. In consequence, throngs attend the different out-patient departments who are perfectly able to pay a physician. The result is a pauperizing effect on the community.

Dr. Cabot gives an address with this or a similar heading: "Better Medical Care, Cheaper." The idea is, I understand, to have a general clearing house of specialists which will entirely eliminate the common doctor.

With the active competition of the various municipal and endowed hospitals of the city, the lot of the ordinary physician is becoming intolerable, and it will not improve until a radical change is made in the conduct of the municipal and endowed hospitals; until they are made to serve the physician and the public with a proper regard for the rights of all concerned.

Very truly yours,

CHARLES MALONE, M.D.

5 Glen Road, Jamaica Plain.

[NOTE.—The letter from Dr. Cabot, which was printed in the issue of the JOURNAL for Dec. 23, was originally written by him for publication in the daily press, but was refused.—EDITOR.]

THE USE OF BACTERINS IN DERMATOLOGY.

BOSTON, DEC. 23, 1915.

Mr. Editor: In the December 16th edition of the JOURNAL one may read on page 910 the following words: "The attention of the writers was attracted by the number of cases of chronic pyogenic dermatoses in the Skin Clinic of the Massachusetts General Hospital, in which, it seemed to them, the results were unjustifiably poor. Investigation developed the fact that the 'failures,' almost without exception, had been treated solely by external methods of various kinds for considerable periods of time. It was rarely that a case was found in which bacterin therapy had been used."

These words are true as far as they go, but in justice to the members of the Skin Department of the hospital, I would like to make the following statement: From the beginning of "vaccine" therapy the skin staff has made use of appropriate bacterins in the treatment of skin diseases. These bacterins have been made and administered by various members of the pathological staff appointed for this sole purpose, while many and various "stock" vaccines have been injected by different members of the skin staff. The results, except in furunculosis, throughout these years have been uncompromisingly poor, not only in the Massachusetts General Hospital, but in the practice, both public and private, of most dermatologists in America. A few men, in the writer's experience, have succeeded and have continued this type of therapy, but most men have felt obliged to abandon this field defeated. In other words, the ability to succeed in the making and administering of bacterins is a gift of the Gods, like the ability to use x-rays successfully in skin therapy,—a few have succeeded, but the great majority has failed and given up the attempt.

When Dr. Dennie came to the skin clinic of the Massachusetts General Hospital he was assigned the task in which so many predecessors had failed, and he soon demonstrated to our great satisfaction that he was one of the chosen few. His results are now tabulated and it is only proper to record here our great disappointment when his time of service was completed, and he decided to return to Kansas City to take up his permanent abode.

Respectfully yours,

CHARLES J. WHITE, M.D.

A HERO REWARDED.

PARIS, Dec. 15, 1915.

Mr. Editor:

It my letter of November 13 found any readers, they may be interested to hear that the pink and white English lad therein mentioned as having passed from the tennis-lawns of his native land into the very midst of the hard fighting in Champagne toward the end of last September, when for three consecutive days and nights he ran a motor ambulance under fire over a three kilometer beat between the trenches and the guns, has been mentioned in French army orders and proposed for the cross of war for conspicuous gallantry. The curious part of it all is that when he told me about it he didn't appear to think that he had done anything special, and certainly never dreamed of the honor that was to fall to his lot. His car was hit several times, but he himself came through without a scratch.

"S."

Miscellany.

UNITED STATES PUBLIC HEALTH SERVICE.

EXAMINATION OF CANDIDATES FOR ASSISTANT SURGEON.

Boards will be convened at the Bureau of Public Health Service, 3 "B" Street, S. E., Washington, D.C., and at a number of the Marine Hospitals of the Service, on Monday, January 24, 1916, at 10 o'clock a.m., for the purpose of examining candidates for admission to the grade of Assistant Surgeon in the Public Health Service.

The candidate must be between 23 and 32 years of age, a graduate of a reputable medical college, and must furnish testimonials from two responsible persons as to his professional and moral character, together with a recent photograph of himself. Credit will be given in the examination, for service in hospitals for the insane, experience in the detection of mental diseases, and in any other particular line of professional work. Candidates must have had one year's hospital experience or two years' professional work.

Candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate. Examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise covers the various branches of Medicine, Surgery and Hygiene.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order. They will receive early appointments. After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon. Passed Assistant Surgeons after twelve years' experience are entitled to examination for promotion to the grade of Surgeon.

Assistant surgeons receive $2,000, passed assistant surgeons $2,400, surgeons $3,000, senior surgeons $3,500, and assistant surgeon-generals $4,000 a year. When quarters are not provided, commutation at the rate of $30, $40, and $50 a month, according to the grade, is allowed. All grades receive longevity pay, 10% in addition to the regular salary for every five years, up to 40% after twenty years' service. The tenure of office is permanent. Officers traveling under orders are allowed actual expenses. For invitation to appear before the board of examiners, address "Surgeon-General, Public Health Service, Washington, D. C."

NOTICES.

MASSACHUSETTS STATE WASSERMANN LABORATORY.—The State Department of Health has established a

Wassermann Laboratory in Building D, Room 103, 240 Longwood Ave., Boston. This Laboratory offers free Wassermann service to State, county, municipal, public and private institutions and hospitals, local boards of health, and to private physicians. With regard to private physicians, specimens for examination must be submitted by direction of a State district health officer who will furnish the necessary outfits, or patients must be sent directly to the Wassermann Laboratory unless the physician's local board of health has made arrangements for submitting such specimens.

It is desirable to have local boards of health take advantage of free Wassermann tests in order to make the service equally accessible to physicians in all parts of the State.

For further particulars address

STATE WASSERMANN LABORATORY.

THE HARVEY SOCIETY.—The fifth lecture of the series will be given at the New York Academy of Medicine, 17 West 43rd Street, on Saturday evening, January 15, 1916, at 8.30 o'clock, by Dr. Donald D. Van Slyke, The Rockefeller Institute for Medical Research. Subject: "The Present Significance of the Amino Acids in Physiology and Pathology."

NEW ENGLAND OTOLOGICAL AND LARYNGOLOGICAL SOCIETY.—Meeting of the Society will be held on Tuesday, January 18, at the Boston Medical Library, at 8 p.m.

1. "Report of Two Cases of Retrobulbar Neuritis," Dr. Leon E. White, Boston.
2. "The Value of Bone and Cartilage Transplants in Rhinological Surgery," Dr. William Wesley Carter, New York.

WILLIAM F. KNOWLES, M.D., *Secretary.*

CHILDREN'S HOSPITAL.—Clinical Meeting. The visiting staff of the Children's Hospital will hold a clinical meeting at the hospital, Friday, January 21, 1916, at 4.30 P.M. Physicians and students are invited.

HAROLD C. ERNST, M.D., *Chairman.*

APPOINTMENTS.

At the last meeting of the President and Fellows of Harvard College in 1915, the following appointments and reappointments in the Harvard Medical School were announced:

George R. Minot, M.D., assistant in medicine.
Harry Linenthal, M.D., assistant in medicine.
Harold Bowditch, M.D., assistant in medicine.
Ernest Grey, M.D., assistant in surgery.
Albert Ehrenfried, M. D., assistant in surgery.
Robert B. Osgood, M.D., instructor in surgery.
Raymond S. Titus, M.D., alumni assistant in obstetrics.
William R. Osler, M.D., Austin teaching fellow in bacteriology.
John K. Wright, M.D., assistant in military science.
Francis W. Peabody, M.D., consulting physician to the Collis P. Huntington Memorial Hospital.
Edward H. Risley, M.D., assistant surgeon to the Collis P. Huntington Memorial Hospital.
Henry Lyman, M.D., research fellow in chemistry of the cancer commission of Harvard University.

BOSTON DISPENSARY.—New appointments for the year 1916 are as follows:

Stephen Rushmore, M.D., surgeon, gynecological department.
Harold B. Eaton, M.D., physician, nerve and mental department.
E. J. Kelley, M.D., assistant to the physicians, medical department.
A. F. Browne, M.D., assistant to the physicians, medical department.
Fred C. Gunter, M.D., assistant to the physicians, medical department.
Margaret Grogan, M.D., assistant to the physicians, medical department.
I. W. Jacobs, M.D., assistant to the physicians, children's department.
Raymond S. Titus, M.D., assistant to the surgeons, gynecological department.
Foster S. Kellogg, M.D., assistant to the surgeons, gynecological department.
Paul J. D. Haley, M.D., assistant surgeon, eye department.
John A. Reese, M.D., assistant to the surgeons, genito-urinary department.
David Williams, M.D., assistant to the surgeons, genito-urinary department.

Promotions for the year 1916:

Charles H. Hare, M.D., (formerly surgeon) consultant surgeon, gynecological department.
Malcolm Storer, M.D., (formerly surgeon) surgeon-in-chief, gynecological department.
Robert L. DeNormandie, M.D., (formerly assistant surgeon) surgeon, gynecological department.
John B. Swift, M.D., (formerly assistant to surgeon) assistant surgeon, gynecological department.
John T. Williams, M.D., (formerly assistant to surgeon) assistant surgeon, gynecological department.
Clarence G. Lane, M.D., (formerly assistant to physician) assistant physician, dermatological department.
Elmer S. Bagnall, M.D. (formerly assistant to physician) assistant physician, medical department.

FORDHAM UNIVERSITY.—The reorganization of the staff of the departments of physiology and biochemistry results in the appointment of Lewis W. Fetzer, Ph.D., M.S., professor of physiology and biochemistry; George F. Sheedy, Ph.B., M.S., assistant professor of physiology; Carl P. Sherwin, M.S., Ph.S., assistant professor of biochemistry; John A. Killian, A.B., A.M., instructor in physiology and biochemistry.

RECENT DEATHS.

DR. JOHN GEORGE DEARBORN, a retired Fellow of the Massachusetts Medical Society, died at his home in East Boston, January 3, 1916. He was a graduate of the New York University Medical College in 1858, and settled in East Boston in 1872. During the Civil War he was assistant surgeon in the United States Navy. For many years he was surgeon to the State Prison at Charlestown. He is survived by a widow and one daughter.

DR. JOSEPH J. O'CONNELL, health officer of the port of New York, died of myocarditis at his home in the quarantine station, Staten Island, on January 2, at the age of 49. He was a graduate of the Long Island College Hospital, and was for many years the sanitary inspector in charge of the contagious disease bureau of the Brooklyn board of health. On February 1, 1912, he was appointed health officer of the port of New York and among the results of his administration is the quarantine pathological and bacteriological laboratory which is considered one of the finest in the world. He effected many radical changes in the administration of the department and during the typhus visitation of New York harbor in 1914, he won a wide reputation for his work of sanitation. His plan has since been adopted by the German and other government medical authorities of Europe. He is survived by his widow, a daughter and two sons.

DR. GEORGE THOMAS JACKSON, formerly professor of dermatology at the College of Physicians and Surgeons of Columbia University, died in New York at 64 years of age. Dr. Jackson was professor of dermatology at Vermont University from 1895 to 1897, and was the author of several medical text-books. His use, in 1909, of liquid air as a therapeutic agent attracted wide attention.